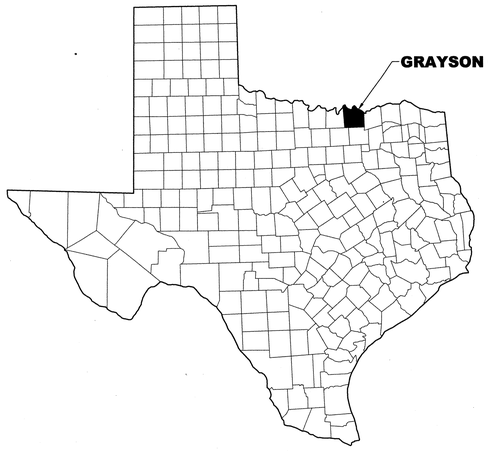
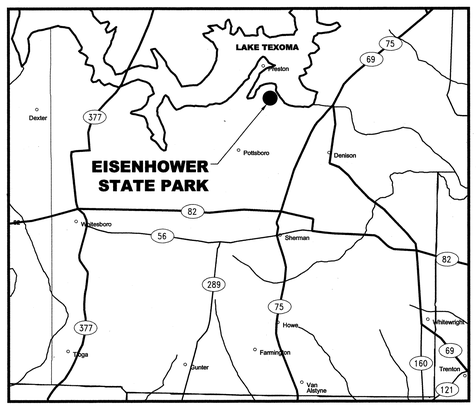


NORTH

COUNTY LOCATION MAP

NOT TO SCALE



NORTH

VICINITY MAP

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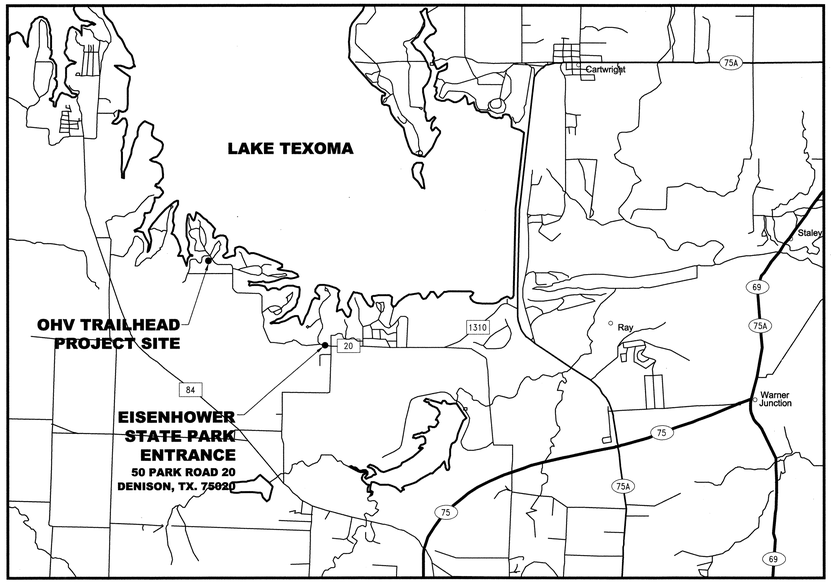

NORTH

SITE LOCATION MAP

NOT TO SCALE

DESIGN TEAM

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INSPECTOR
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doug.smith@tpwd.texas.gov

PROJECT

EISENHOWER STATE PARK

OHV TRAILHEAD FACILITIES

PROJECT NO: 116834 DATE: JANUARY 2016

INDEX OF DRAWINGS

BUILDING CODE SUMMARY

A. INTERNATIONAL CODE COUNCIL
- i. BUILDING CODE — INTERNATIONAL BUILDING CODE 2012
- ii. RESIDENTIAL CODE — INTERNATIONAL RESIDENTIAL CODE 2012
- iii. EXISTING BUILDINGS — INTERNATIONAL EXISTING BUILDINGS CODE 2012
- iv. STRUCTURAL CODE — INTERNATIONAL BUILDING CODE 2012
- v. PLUMBING CODE — INTERNATIONAL PLUMBING CODE 2012
- vi. MECHANICAL CODE — INTERNATIONAL MECHANICAL CODE 2012
- vii. ENERGY CODE — INTERNATIONAL ENERGY CODE 2012
- viii. GAS CODE — INTERNATIONAL FUEL GAS CODE 2012

B. NATIONAL FIRE PROTECTION ASSOCIATION
- i. ELECTRICAL CODE — NATIONAL ELECTRICAL CODE 2014

C. STATE ENERGY CONSERVATION OFFICE/TEXAS COMPTROLLERS OFFICE
- i. ENERGY CODES FOR STATE BUILDINGS — Title 34, Part 1, Ch. 19, Sb.C. Rule 19.31
  - 1. CERTIFICATION FOR RESIDENTIAL AND NONRESIDENTIAL BUILDINGS REQUIRED BY ARCHITECT/ENGINEER

D. ACCESSIBILITY CODE
- i. U.S. DEPT. OF JUSTICE, 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN
- ii. U.S. DEPT. OF JUSTICE, ARCHITECTURAL BARRIERS ACT, ACCESSIBILITY GUIDELINES FOR OUTDOOR DEVELOPED AREAS ON FEDERAL LANDS, EFFECTIVE 10-25-2013
- iii. 2012 TEXAS ACCESSIBILITY STANDARDS, ELIMINATION OF ARCHITECTURAL BARRIERS, TEXAS GOVERNMENT CODE, CHAPTER 469

E. PLAYGROUND SAFETY CODE
- i. Public Playground Safety Handbook, U.S. Consumer Product Safety Commission.

SCOPE OF WORK

THIS PROJECT INCLUDES THE INSTALLATION OF A PRECAST CONCRETE VAULT TOILET BUILDING, ASPHALT PARKING LOT, CONCRETE RIBBON CURBS, PAVILION, PICNIC GRILLS, CONCRETE WALKS AND RAMPS, PIPE RAIL FENCING, STORAGE BUILDING, STONE RETAINING WALLS, HOSE BIBS, DRINKING FOUNTAIN, LIGHTING, WATER AND ELECTRICAL CONNECTIONS, FINISH GRADING, AND SEEDING AT EISENHOWER STATE PARK.

TEXAS PARKS & WILDLIFE

TEXAS PARKS AND WILDLIFE

INFRASTRUCTURE DIVISION

4200 SMITH SCHOOL ROAD - AUSTIN, TEXAS 78744-3292

REGISTERED LANDSCAPE ARCHITECT — WILLIAM M. McDONALD IV — 822 — STATE OF TEXAS

STATE OF TEXAS — RANDALL J. COMBS — 66182 — REGISTERED PROFESSIONAL ENGINEER

1-5-16

APPROVED

PROJECT MANAGER, INFRASTRUCTURE DIVISION — DATE 1/6/16

P&D BRANCH HEAD, INFRASTRUCTURE DIVISION — DATE JAN. 6 2016

PM BRANCH HEAD, INFRASTRUCTURE DIVISION — DATE 1/6/16

DEPUTY DIRECTOR, INFRASTRUCTURE DIVISION — DATE JAN. 6 2016

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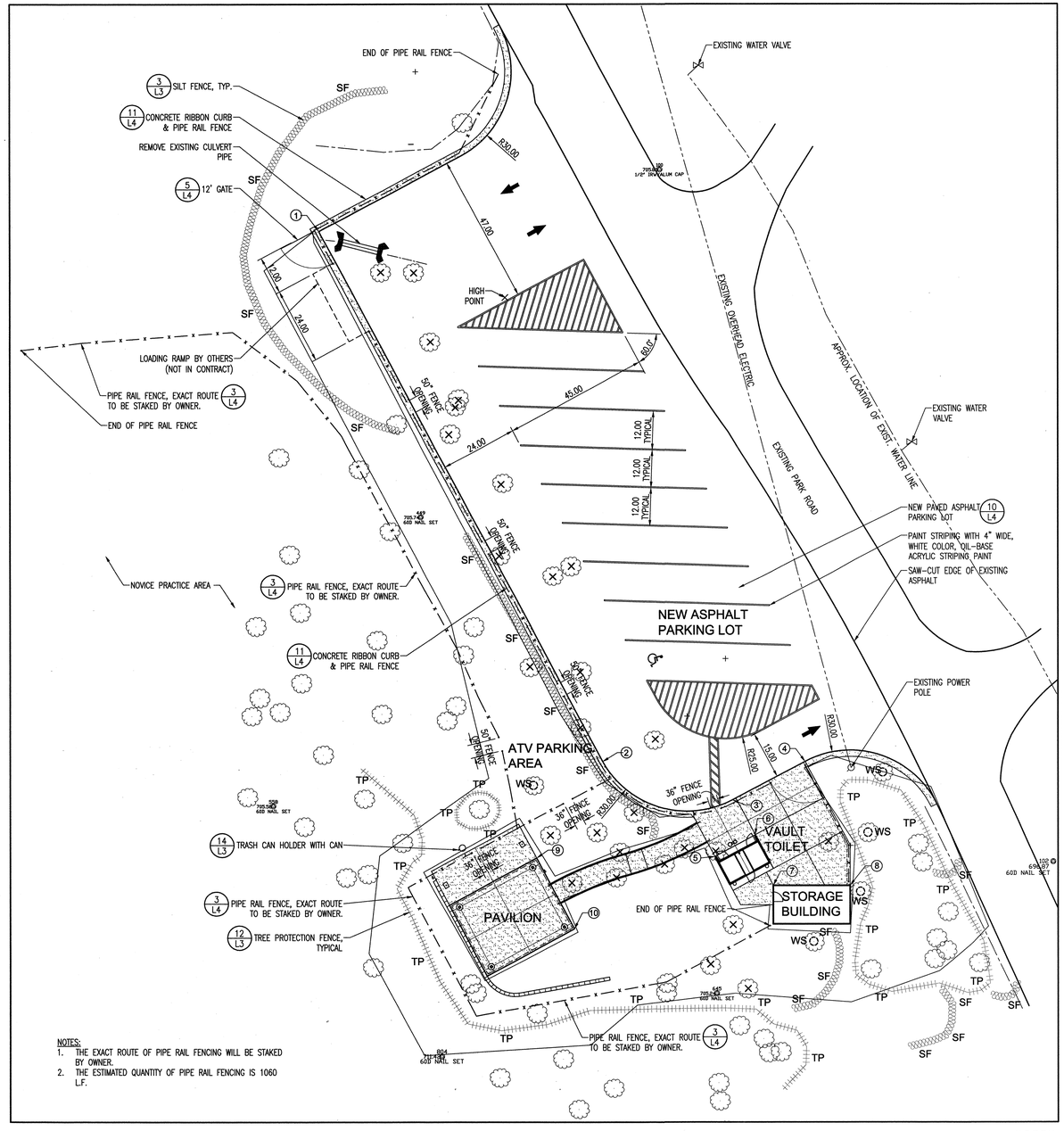
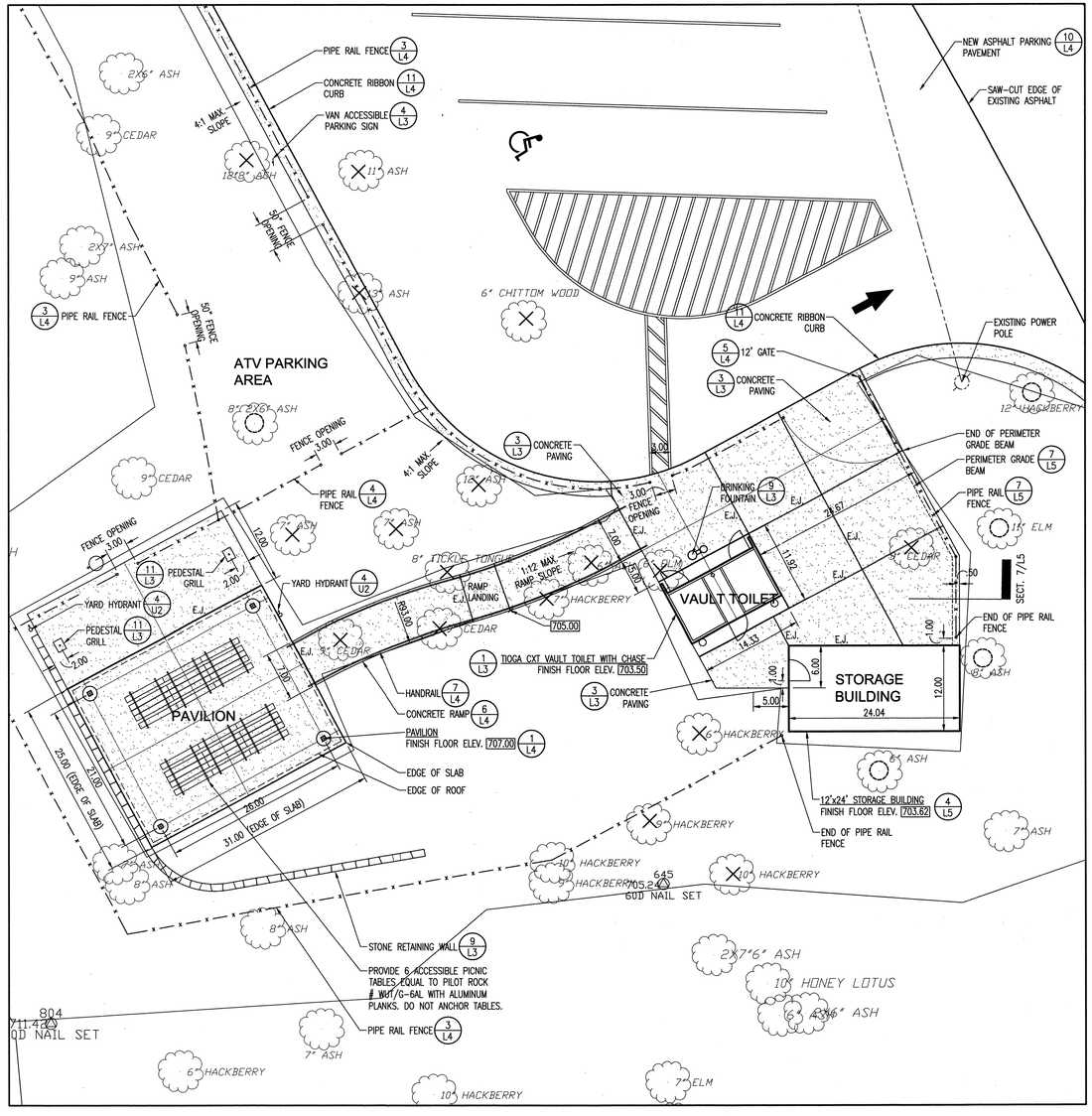


NOTES:
1. THE EXACT ROUTE OF PIPE RAIL FENCING WILL BE STAKED BY OWNER.
2. THE ESTIMATED QUANTITY OF PIPE RAIL FENCING IS 1060 L.F.

1 OVERALL SITE PLAN, TREE PROTECTION, SILT FENCING - OHV TRAIL AREA

NORTH

20' 10' 0' 20'



2 SITE PLAN - PAVILION, VAULT TOILET, & STORAGE BUILDING AREA

NORTH

10' 5' 0' 10'

Point	Northing	Easting	Elevation	Description
3	7350980.357	2542217.918	708.05	CONCRETE MONUMENT ESP-3
4	7351044.127	2541305.997	708.10	CONCRETE MONUMENT ESP-4
100	7351711.783	2540206.862	705.83	1/2" IRON REBAR W/ALUM CAP
102	7351495.035	2540329.910	696.87	60D NAIL SET
449	7351602.790	2540131.956	705.74	60D NAIL SET
558	7351512.398	2540085.681	705.58	60D NAIL SET
628	7351384.372	2540093.884	706.99	60D NAIL SET
645	7351454.222	2540224.648	705.24	60D NAIL SET
804	7351434.702	2540138.506	711.42	60D NAIL SET

NOTE:

Horizontal Control is based on NAD83 (2011) (EPOCH:2010.0000) Texas State Plane Coordinate System, North Central Zone in U.S. Survey Feet, as derived by GPS static observations and NGS OPUS solutions.

Elevations shown hereon are NGVD29 based on Stackhouse monumentation.

3 SURVEY CONTROL SCHEDULE

Point	Northing	Easting	New Elevation	Description
①	7351692.19	2540100.07	703.50	CORNER OF RIBBON CURB
②	7351526.55	2540188.91	703.50	RIBBON CURVE TANGENT POINT
③	7351514.29	2540229.53	703.24	RIBBON CURVE TANGENT POINT
④	7351526.48	2540252.26	70230	RIBBON CURVE TANGENT POINT
⑤	7351496.59	2540224.03	703.50	CORNER OF VAULT TOILET SLAB
⑥	7351503.36	2540236.66	703.50	CORNER OF VAULT TOILET SLAB
⑦	7351487.62	2540242.30	703.50	CORNER OF STORAGE BUILDING
⑧	7351487.62	2540266.34	703.50	CORNER OF STORAGE BUILDING
⑨	7351496.17	2540168.20	707.00	PAVILION SLAB CORNER
⑩	7351474.14	2540180.01	707.00	PAVILION SLAB CORNER

4 PROPOSED COORDINATE SCHEDULE

LEGEND

- 1017 — EXISTING GRADE CONTOUR
- 1017 — PROPOSED NEW GRADE CONTOUR
- 440.20 — PROPOSED FINISH SPOT GRADE
- 3010 1016.04 1/2" IR T-381 — SURVEY CONTROL POINT
- ⑤ — PROPOSED COORDINATE POINT
- SF — SILT FENCING
- TP — TREE PROTECTION FENCING
- 13" ELM — EXISTING TREE TO REMAIN
- WS 13" ELM — WOOD SLAT TREE PROTECTION
- 13" ELM — EXISTING TREE TO BE REMOVED
- — x — x — PIPE RAIL FENCE

NOTES:
1. INSTALL TREE PROTECTION AND SILT FENCING AT THE START OF CONSTRUCTION.
2. TREE PROTECTION IS REQUIRED FOR ALL EXISTING TREES WITHIN 20' OF CONSTRUCTION. REFER TO DETAILS.
3. FINISH GRADE OF ACCESSIBLE PARKING SPACE AND ACCESS AISLE SHALL NOT EXCEED A SLOPE GREATER THAN 2% IN ANY DIRECTION.
4. PROPOSED FINISH GRADE ELEVATIONS SHOWN ARE APPROXIMATE.
5. SLOPE THE SITE & CONCRETE SLABS TO DRAIN AWAY FROM THE BUILDINGS AND TO PREVENT PONDING, TYPICAL.
6. SEED AND COVER ALL DISTURBED WITH EROSION CONTROL FABRIC AS SPECIFIED.

TEXAS PARKS & WILDLIFE

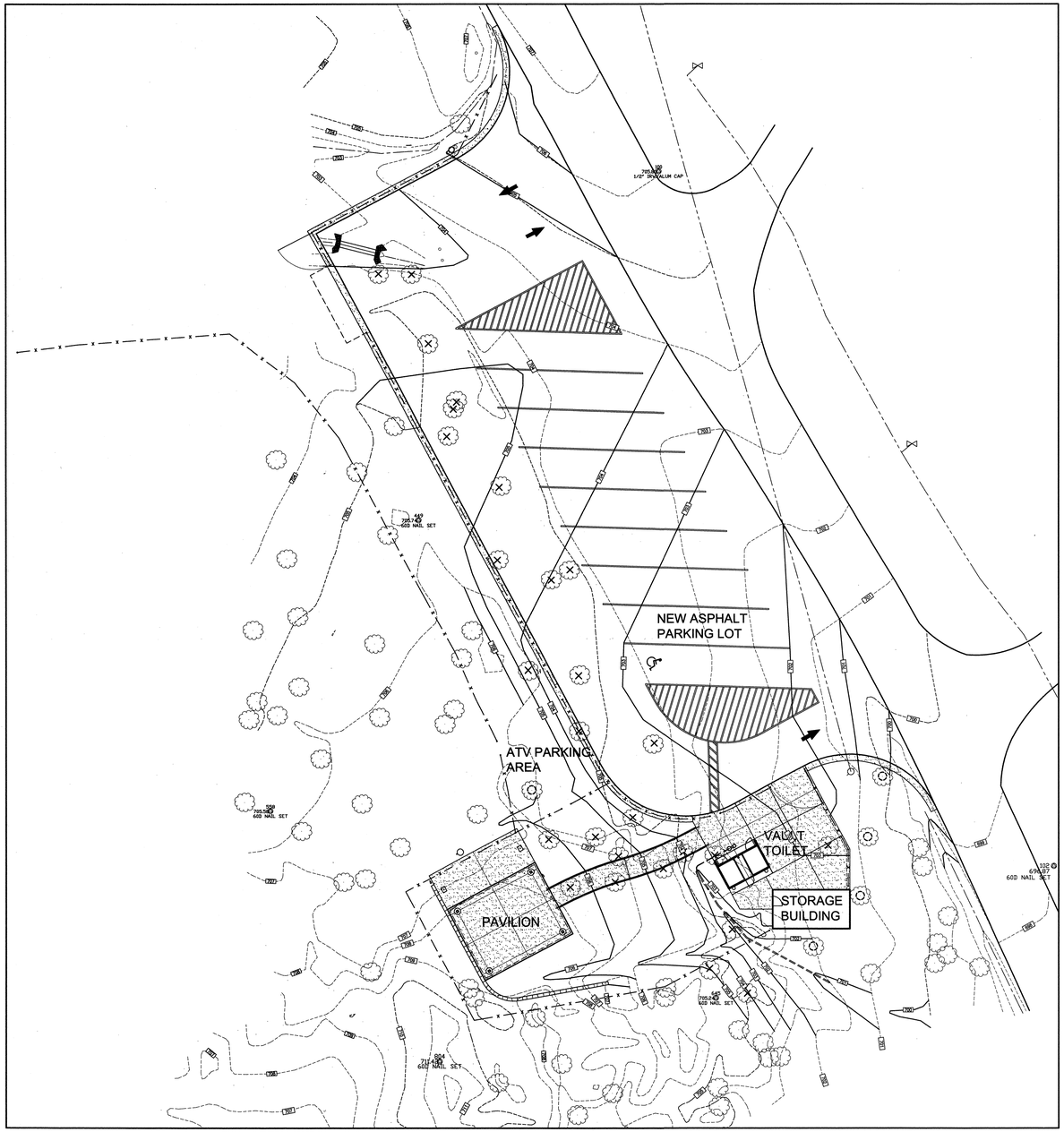
REGISTERED LANDSCAPE ARCHITECT WILLIAM M. McDONALD IV 822 STATE OF TEXAS

EISENHOWER STATE PARK
OHV TRAILHEAD FACILITIES
PROJECT NUMBER: 116834

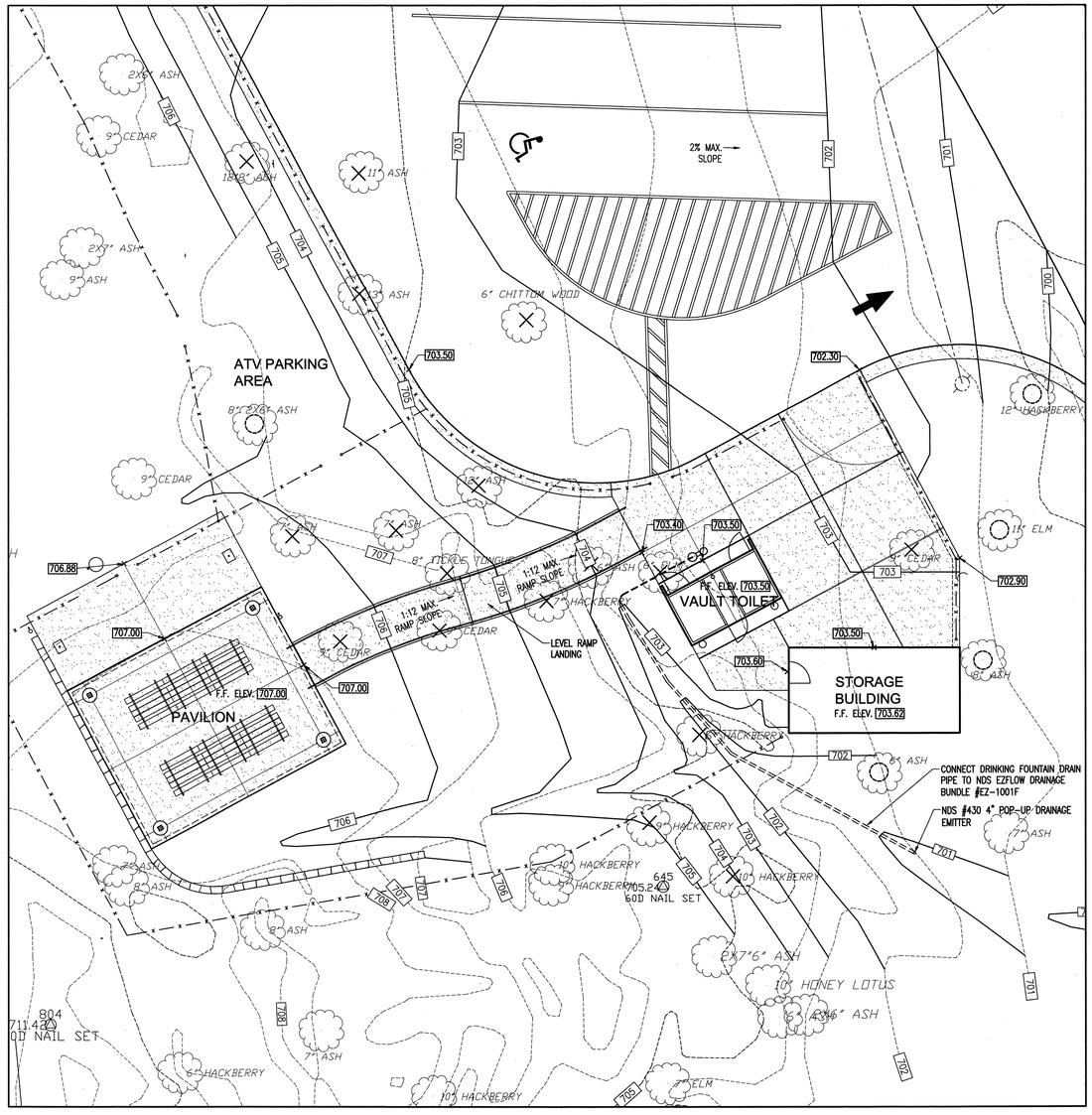
DATE: 01/05/16
DESIGNED BY: BMc
DRAWN BY: BMc
REVIEWED BY:
REVISED:
REVISED:
REVISED:

SHEET TITLE
SITE PLAN

SHEET NUMBER
L1
OF
1167834_ L sheets.dwg



1 OVERALL GRADING PLAN - OHV TRAIL AREA



2 GRADING PLAN - PAVILION, VAULT TOILET, & STORAGE BUILDING AREA

Point	Northing	Easting	Elevation	Description
3	7350980.357	2542217.918	708.05	CONCRETE MONUMENT ESP-3
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558	7351512.398	2540085.681	705.58	60D NAIL SET
628	7351384.372	2540093.884	706.99	60D NAIL SET
645	7351454.222	2540224.648	705.24	60D NAIL SET
804	7351434.702	2540138.506	711.42	60D NAIL SET

NOTE:

Horizontal Control is based on NAD83 (2011) (EPOCH:2010.0000) Texas State Plane Coordinate System, North Central Zone in U.S. Survey Feet, as derived by GPS static observations and NGS OPUS solutions.

Elevations shown hereon are NGVD29 based on Stackhouse monumentation.

3 SURVEY CONTROL SCHEDULE

Point	Northing	Easting	New Elevation	Description
1	7351692.19	2540100.07	703.50	CORNER OF RIBBON CURB
2	7351526.55	2540188.91	703.50	RIBBON CURVE TANGENT POINT
3	7351514.29	2540229.53	703.24	RIBBON CURVE TANGENT POINT
4	7351526.48	2540252.26	70230	RIBBON CURVE TANGENT POINT
5	7351496.59	2540224.03	703.50	CORNER OF VAULT TOILET SLAB
6	7351503.36	2540236.66	703.50	CORNER OF VAULT TOILET SLAB
7	7351487.62	2540242.30	703.50	CORNER OF STORAGE BUILDING
8	7351487.62	2540266.34	703.50	CORNER OF STORAGE BUILDING
9	7351496.17	2540168.20	707.00	PAVILION SLAB CORNER
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4 PROPOSED COORDINATE SCHEDULE

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- TP — TREE PROTECTION FENCING
- 13" ELM — EXISTING TREE TO REMAIN
- WS 13" ELM — WOOD SLAT TREE PROTECTION
- 13" ELM — EXISTING TREE TO BE REMOVED
- — x — x — PIPE RAIL FENCE

NOTES:
1. INSTALL TREE PROTECTION AND SILT FENCING AT THE START OF CONSTRUCTION.
2. TREE PROTECTION IS REQUIRED FOR ALL EXISTING TREES WITHIN 20' OF CONSTRUCTION. REFER TO DETAILS.
3. FINISH GRADE OF ACCESSIBLE PARKING SPACE AND ACCESS AISLE SHALL NOT EXCEED A SLOPE GREATER THAN 2% IN ANY DIRECTION.
4. PROPOSED FINISH GRADE ELEVATIONS SHOWN ARE APPROXIMATE.
5. SLOPE THE SITE & CONCRETE SLABS TO DRAIN AWAY FROM THE BUILDINGS AND TO PREVENT PONDING, TYPICAL.
6. SEED AND COVER ALL DISTURBED WITH EROSION CONTROL FABRIC AS SPECIFIED.

TEXAS PARKS & WILDLIFE

REGISTERED LANDSCAPE ARCHITECT WILLIAM M. McDONALD, JR. 822 STATE OF TEXAS
Wm M McDonald Jr 01/05/16

EISENHOWER STATE PARK
OHV TRAILHEAD FACILITIES
PROJECT NUMBER: 116834

DATE: 01/05/16
DESIGNED BY: BMc
DRAWN BY: BMc
REVIEWED BY:
REVISED:
REVISED:
REVISED:

SHEET TITLE
SITE PLAN

SHEET NUMBER
L2
OF
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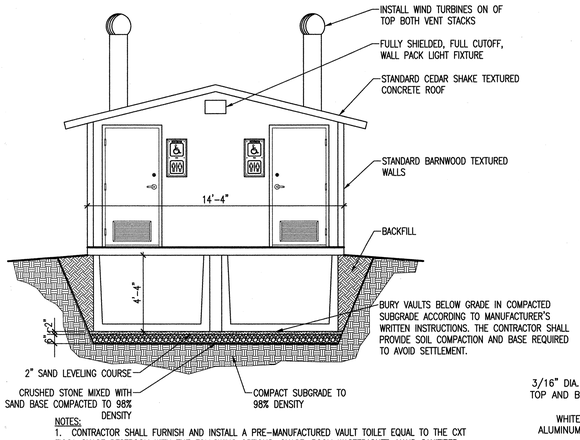
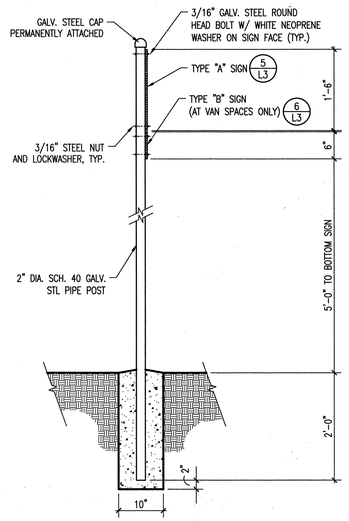
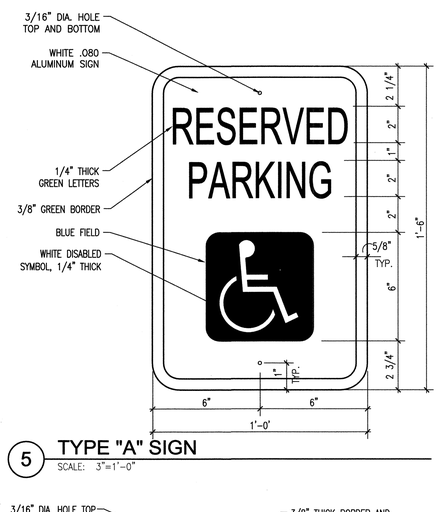


NOTES:
1. CONTRACTOR SHALL FURNISH AND INSTALL A PRE-MANUFACTURED VAULT TOILET EQUAL TO THE CXT TIOGA CHASE RESTROOM WITH THE FOLLOWING OPTIONS: CHASE, ROOM WASTEBASKET, HAND SANITIZER, CONDUIT JUNCTION BOX IN CHASE, ELECTRIC LIGHT PACKAGE, AND PAINT TOUCH UP KIT. SPECIFY THE ELECTRIC LIGHT PACKAGE TO INCLUDE FULLY SHIELDED, FULL CUTOFF WALL PACK EXTERIOR LIGHTS.
2. CONTRACTOR SHALL SUBMIT CONSTRUCTION DRAWINGS OF THE RESTROOM SEALED BY A TEXAS REGISTERED PROFESSIONAL ENGINEER FOR TPWD REVIEW & CXT COLOR CHART FOR COLOR SELECTION.

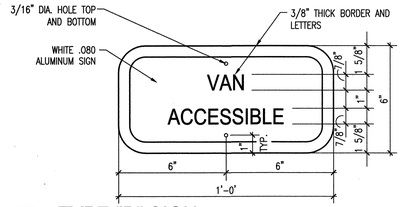
1 CXT TIOGA WITH CHASE RESTROOM
SCALE: 1/4"=1'-0"



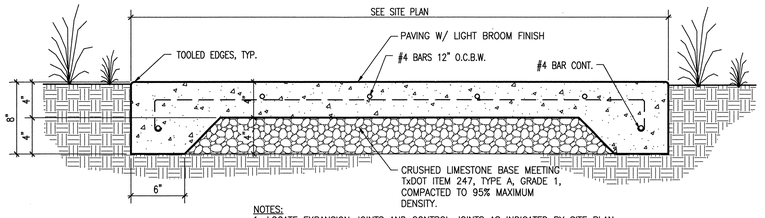
4 ACCESSIBLE PARKING SIGNS ON POST
SCALE: 3/4"=1'-0"



5 TYPE "A" SIGN
SCALE: 3"=1'-0"

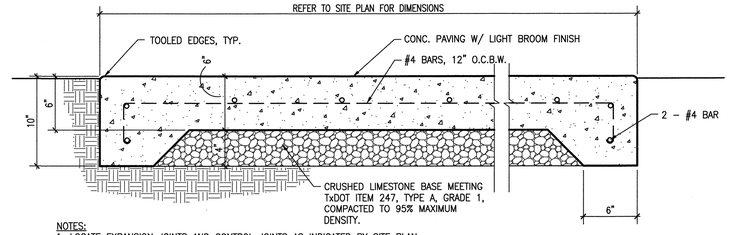


6 TYPE "B" SIGN
SCALE: 3"=1'-0"



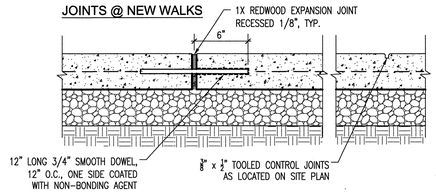
NOTES:
1. LOCATE EXPANSION JOINTS AND CONTROL JOINTS AS INDICATED BY SITE PLAN.
2. CONCRETE TO HAVE A 28 DAY 4000 P.S.I. COMPRESSIVE STRENGTH, SLUMP LIMIT OF 4" PLUS OR MINUS 1", AND MAXIMUM RATIO OF WATER-CEMENTITIOUS MATERIAL OF 0.45 AT POINT OF PLACEMENT.
3. PROVIDE CHAIRS TO HOLD REINFORCING IN POSITION DURING CONCRETE POUR.
4. AFTER FORM REMOVAL, BACKFILL TOPSOIL AGAINST SIDES OF PAVEMENT TO TOP OF PAVEMENT.

2 CONCRETE WALK
SCALE: 1 1/2"=1'-0"

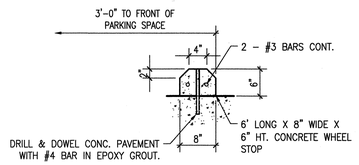


NOTES:
1. LOCATE EXPANSION JOINTS AND CONTROL JOINTS AS INDICATED BY SITE PLAN.
2. CONCRETE TO HAVE A 28 DAY 4000 P.S.I. COMPRESSIVE STRENGTH, SLUMP LIMIT OF 4" PLUS OR MINUS 1", AND MAXIMUM RATIO OF WATER-CEMENTITIOUS MATERIAL OF 0.45 AT POINT OF PLACEMENT.
3. PROVIDE CHAIRS TO HOLD REINFORCING IN POSITION DURING CONCRETE POUR.
4. AFTER FORM REMOVAL, BACKFILL TOPSOIL AGAINST SIDES OF PAVEMENT TO TOP OF PAVEMENT.

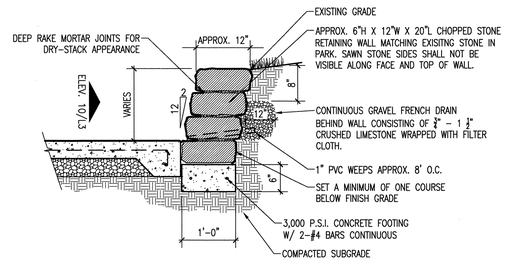
3 TYPICAL CONCRETE PARKING PAVEMENT
SCALE: 1 1/2"=1'-0"



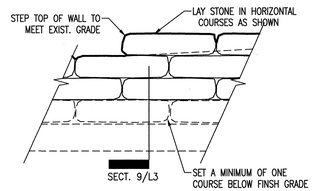
7 TYP. EXPANSION AND CONTROL JOINTS
SCALE: 1 1/2"=1'-0"



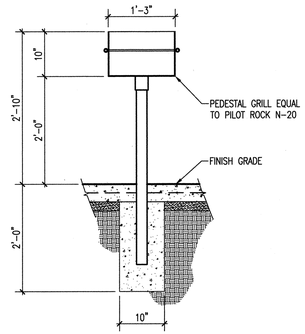
8 WHEEL STOP
SCALE: 3/4"=1'-0"



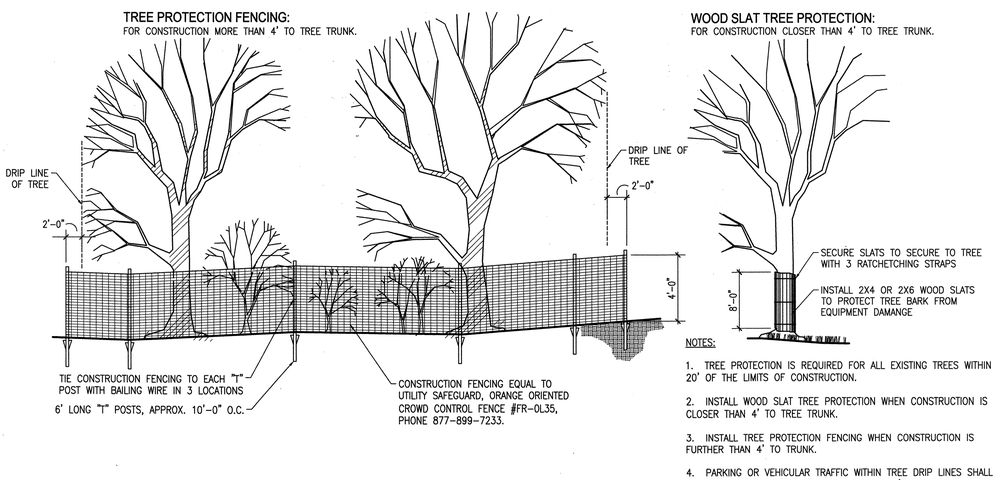
9 TYPICAL STONE RETAINING WALL
SCALE: 3/4"=1'-0"



10 ELEV. - STONE WALL
SCALE: 3/4"=1'-0"

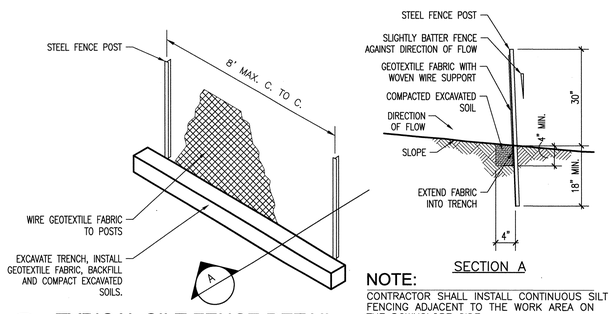


11 PEDESTIAL GRILL
SCALE: 3/4"=1'-0"



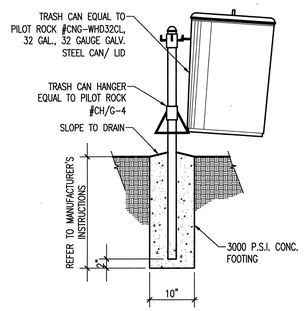
NOTES:
1. TREE PROTECTION IS REQUIRED FOR ALL EXISTING TREES WITHIN 20' OF THE LIMITS OF CONSTRUCTION.
2. INSTALL WOOD SLAT TREE PROTECTION WHEN CONSTRUCTION IS CLOSER THAN 4' TO TREE TRUNK.
3. INSTALL TREE PROTECTION FENCING WHEN CONSTRUCTION IS FURTHER THAN 4' TO TRUNK.
4. PARKING OR VEHICULAR TRAFFIC WITHIN TREE DRIP LINES SHALL BE PROHIBITED UNLESS AUTHORIZED BY OWNER'S REPRESENTATIVE.

12 TREE PROTECTION
NOT TO SCALE



NOTE:
CONTRACTOR SHALL INSTALL CONTINUOUS SILT FENCING ADJACENT TO THE WORK AREA ON THE DOWNSLOPE SIDE.

13 TYPICAL SILT FENCE DETAIL
NOT TO SCALE



14 TRASH CAN HOLDER
SCALE: 3/4"=1'-0"

TEXAS PARKS & WILDLIFE

REGISTERED LANDSCAPE ARCHITECT WILLIAM M. McDONALD IV 822 STATE OF TEXAS
Wm M McDonald IV 01/05/16

EISENHOWER STATE PARK
OHV TRAILHEAD FACILITIES
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DATE: 01/05/16
DESIGNED BY: BMc
DRAWN BY: BMc
REVIEWED BY:
REVISED:
REVISED:
REVISED:

SHEET TITLE
DETAILS

SHEET NUMBER
L3
OF
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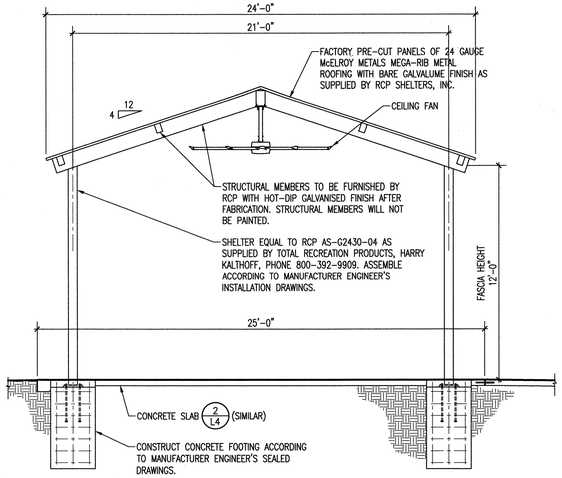
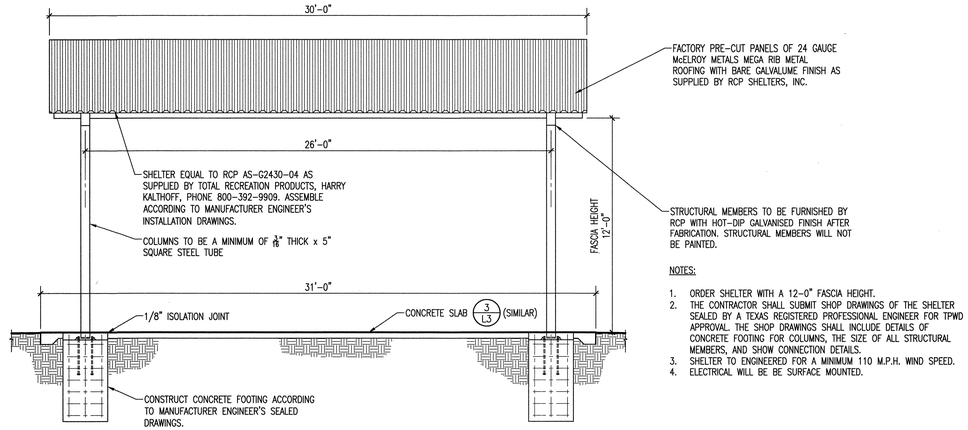


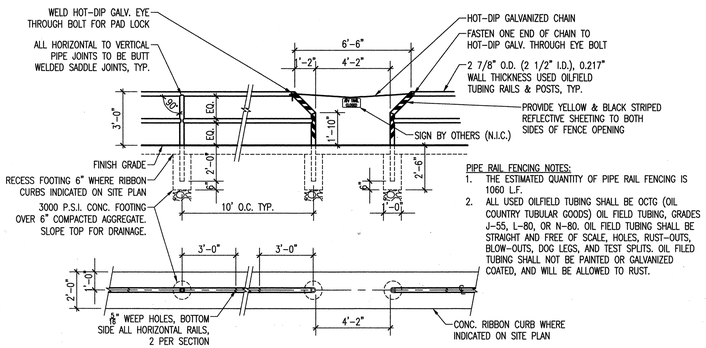
1 SECTION - PAVILION
SCALE: 1/4"=1'-0"



NOTES:

1. ORDER SHELTER WITH A 12-0" FASCIA HEIGHT.
2. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF THE SHELTER SEALED BY A TEXAS REGISTERED PROFESSIONAL ENGINEER FOR TPWD APPROVAL. THE SHOP DRAWINGS SHALL INCLUDE DETAILS OF CONCRETE FOOTING FOR COLUMNS, THE SIZE OF ALL STRUCTURAL MEMBERS, AND SHOW CONNECTION DETAILS.
3. SHELTER TO ENGINEERED FOR A MINIMUM 110 M.P.H. WIND SPEED.
4. ELECTRICAL WILL BE BE SURFACE MOUNTED.

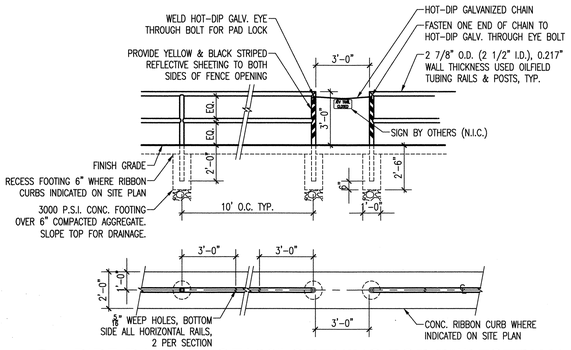
2 SIDE ELEVATION - PAVILION
SCALE: 1/4"=1'-0"



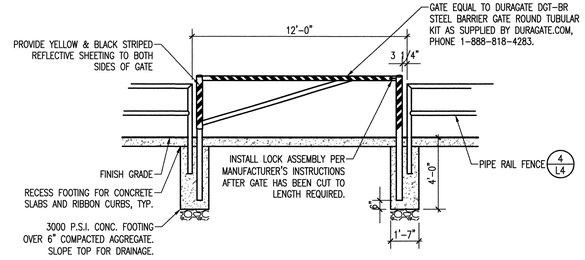
PIPE RAIL FENCING NOTES:

1. THE ESTIMATED QUANTITY OF PIPE RAIL FENCING IS 1060 L.F.
2. ALL USED OILFIELD TUBING SHALL BE OCTG (OIL COUNTRY TUBULAR GOODS) OIL FIELD TUBING, GRADES J-55, L-80, OR N-80. OIL FIELD TUBING SHALL BE STRAIGHT AND FREE OF SCALE, HOLES, RUST-OUTS, BLOW-OUTS, DOG LEGS, AND TEST SPLITS. OIL FILED TUBING SHALL NOT BE PAINTED OR GALVANIZED COATED, AND WILL BE ALLOWED TO RUST.

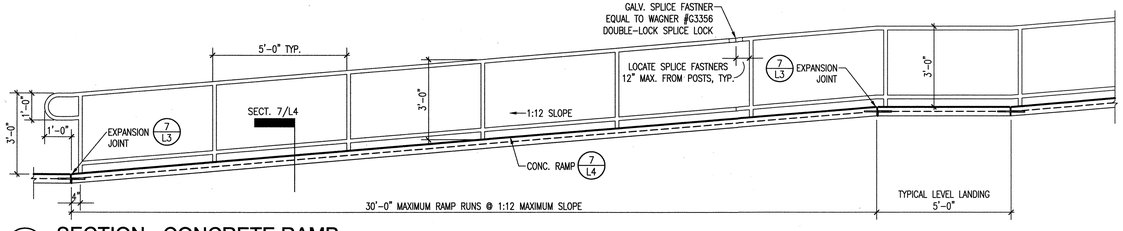
3 PIPE RAIL FENCE/ 50" OPENING FOR OHV ACCESS
SCALE: 1/4"=1'-0"



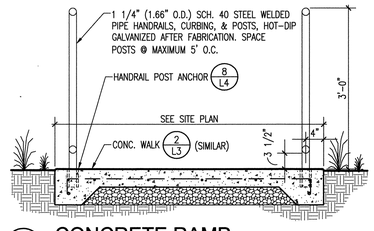
4 PIPE RAIL FENCE/ 36" OPENING FOR PEDESTRIAN ACCESS
SCALE: 1/4"=1'-0"



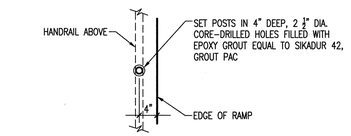
5 PIPE RAIL FENCE/ VEHICULAR ACCESS GATE
SCALE: 1/4"=1'-0"



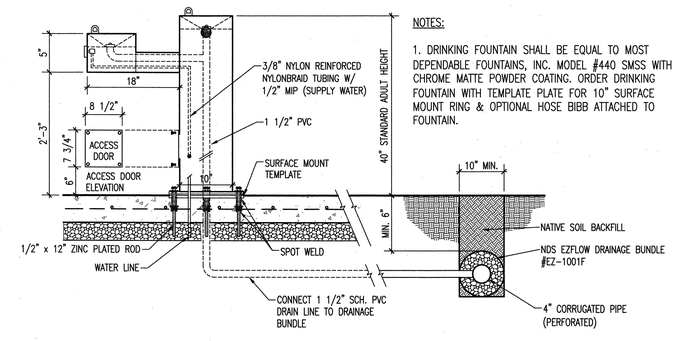
6 SECTION - CONCRETE RAMP
SCALE: 3/8"=1'-0"



7 CONCRETE RAMP
SCALE: 3/4"=1'-0"



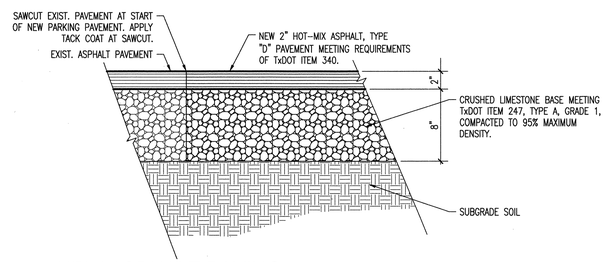
8 TYP. HANDRAIL POST ANCHOR
SCALE: 3/4"=1'-0"



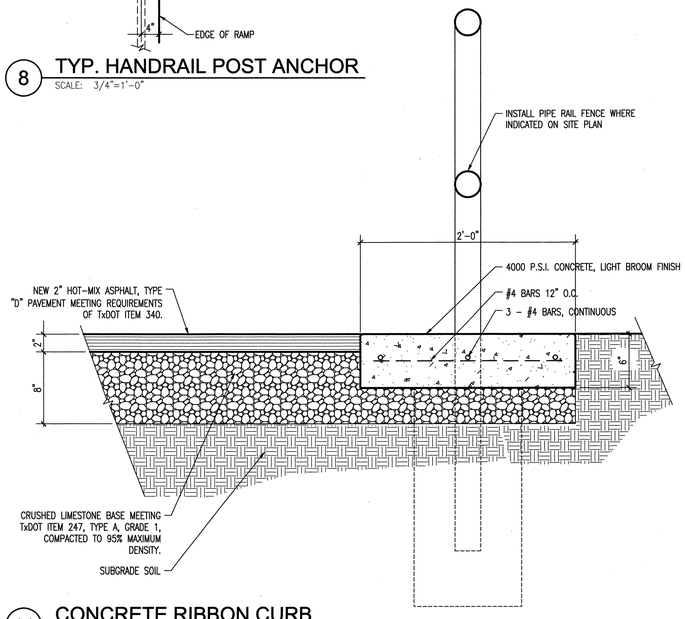
NOTES:

1. DRINKING FOUNTAIN SHALL BE EQUAL TO MOST DEPENDABLE FOUNTAINS, INC. MODEL #440 SMSS WITH CHROME MATTE POWDER COATING. ORDER DRINKING FOUNTAIN WITH TEMPLATE PLATE FOR 10" SURFACE MOUNT RING & OPTIONAL HOSE BIBB ATTACHED TO FOUNTAIN.

9 DRINKING FOUNTAIN
SCALE: 3/4"=1'-0"



10 NEW ASPHALT PAVING
SCALE: 1 1/2"=1'-0"



11 CONCRETE RIBBON CURB
SCALE: 1 1/2"=1'-0"

TEXAS PARKS & WILDLIFE

REGISTERED LANDSCAPE ARCHITECT WILLIAM B. McDONALD, JR. 822 STATE OF TEXAS
01/05/16

EISENHOWER STATE PARK
OHV TRAILHEAD FACILITIES
PROJECT NUMBER: 116834

DATE: 01/05/16
DESIGNED BY: BMc
DRAWN BY: BMc
REVIEWED BY:
REVISED:
REVISED:
REVISED:

SHEET TITLE
DETAILS

SHEET NUMBER
L4
OF
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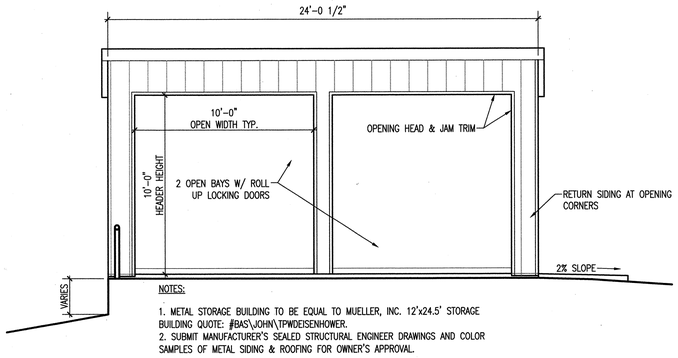
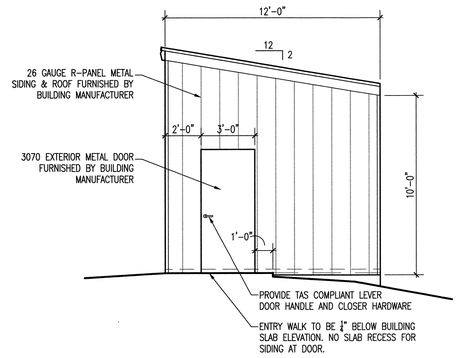
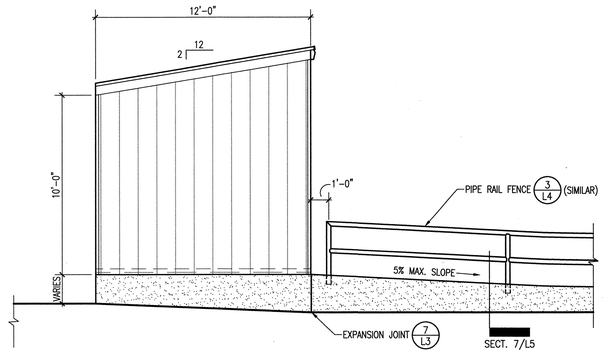


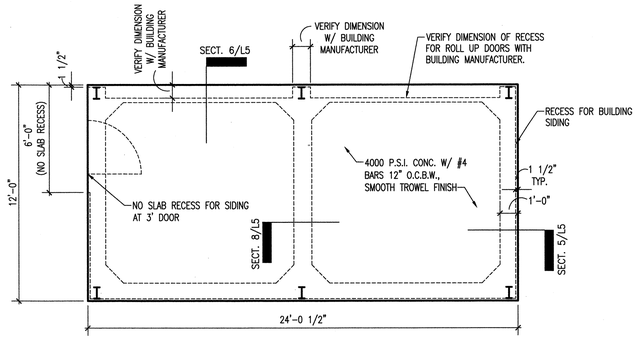
1 STORAGE BUILDING NORTH ELEVATION
SCALE: 1/4"=1'-0"



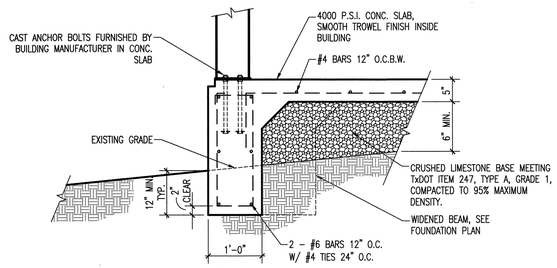
2 STORAGE BUILDING WEST ELEVATION
SCALE: 1/4"=1'-0"



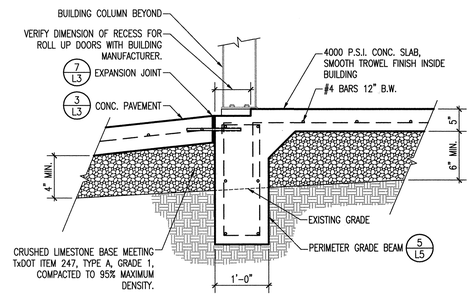
3 STORAGE BUILDING EAST ELEVATION
SCALE: 1/4"=1'-0"



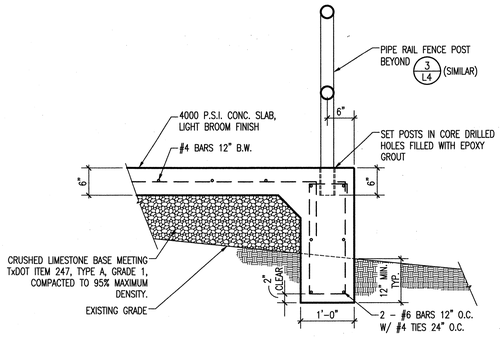
4 STORAGE BUILDING FOUNDATION PLAN
SCALE: 1/4"=1'-0"



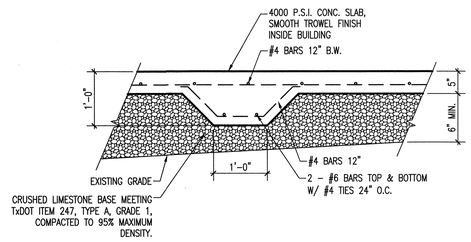
5 STORAGE BUILDING PERIMETER GRADE BEAM
SCALE: 3/4"=1'-0"



6 GRADE BEAM @ ROLL UP DOORS
SCALE: 3/4"=1'-0"



7 CONCRETE PAVING PERIMETER BEAM
SCALE: 1 1/2"=1'-0"



8 INTERIOR SLAB GRADE BEAM
SCALE: 3/4"=1'-0"

TEXAS PARKS & WILDLIFE

REGISTERED LANDSCAPE ARCHITECT
WILLIAM M. McDONALD JR.
823
STATE OF TEXAS
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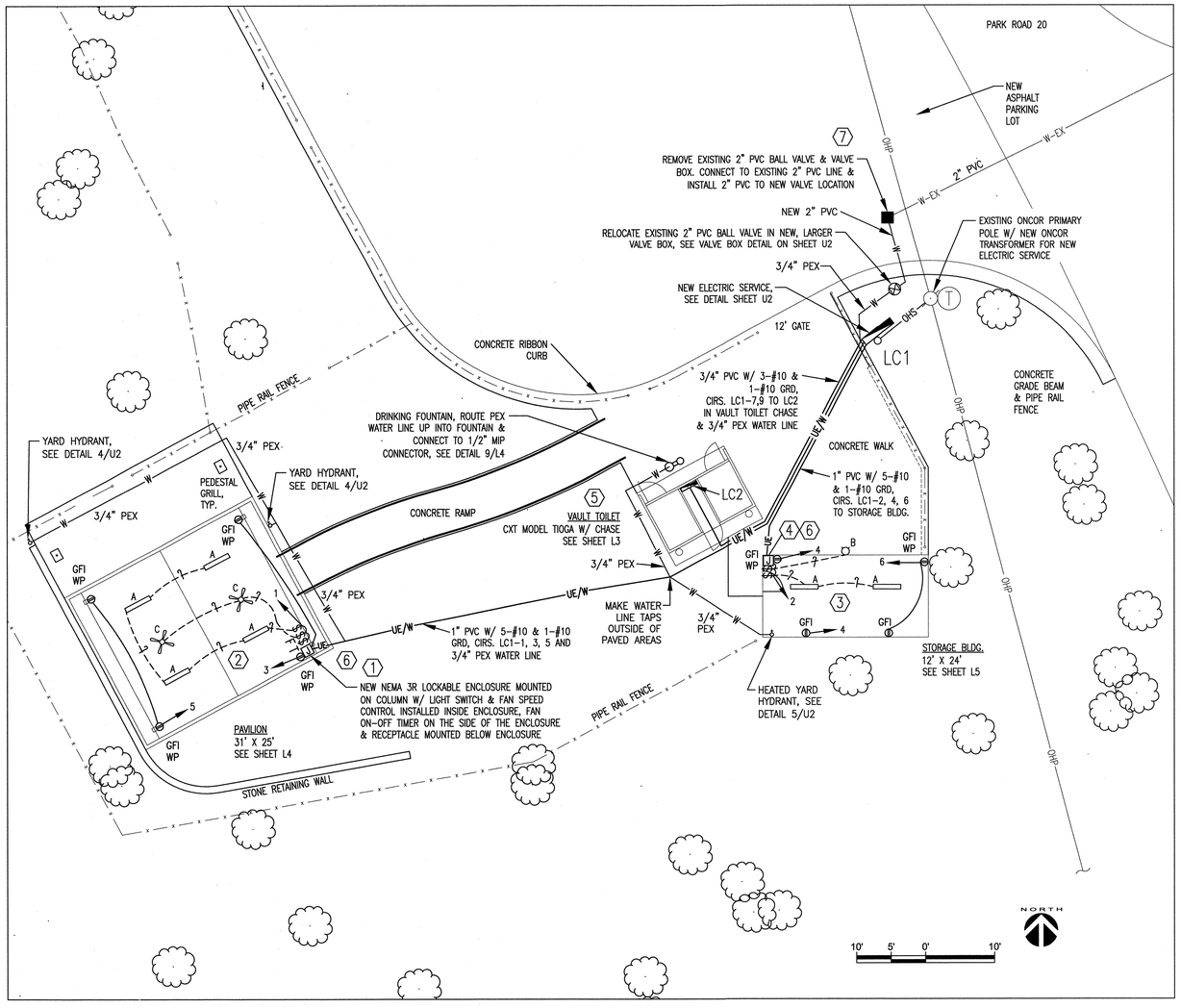


1 UTILITY SITE PLAN - PAVILION, VAULT TOILET, & STORAGE BUILDING AREA

1" = 10'-0"

LEGEND

UE	NEW UNDERGROUND PVC ELECTRIC CONDUIT, SEE TRENCHING DETAILS ON SHEET U2
UE/W	NEW UNDERGROUND PVC ELECTRIC CONDUIT & NEW PEX WATER LINE IN COMMON TRENCH, SEE TRENCHING DETAILS ON SHEET U2
W	NEW UNDERGROUND PEX OR PVC WATER LINE, SEE TRENCHING DETAILS ON SHEET U2
W-EX	EXISTING UNDERGROUND PVC WATER LINE: EXACT ROUTING & DEPTH UNKNOWN
⊗	VALVE IN VALVE BOX, SEE INSTALLATION DETAIL ON SHEET U2
+○	SANITARY, FREEZE-PROOF YARD HYDRANT, SEE DETAILS ON SHEET U2
OHP	EXISTING OVERHEAD PRIMARY ELECTRIC BY ONCOR
OHS	NEW OVERHEAD SECONDARY ELECTRIC BY ONCOR
	EXISTING TREE TO REMAIN

KEYNOTES – ⬡

1. AT THE PAVILION: INSTALL THE NEW RMC FEEDER CONDUIT STUB-UP INTO THE BOTTOM OF AN 8" X 8" X 6" DEEP NEMA 3R, STEEL, LOCKABLE ENCLOSURE MOUNTED ON THE COLUMN. INSTALL THE LIGHT AND FAN CONTROL SWITCHES IN A GANGED OUTLET BOX OR IN INDIVIDUAL OUTLET BOXES INSIDE THE NEW LOCKABLE ENCLOSURE SO THAT THE CENTER OF THE CONTROLS ARE AT 48" A.F.F. INSTALL A STEEL, WALL PLATE FOR THE SWITCH AND THE MANUFACTURER'S PROVIDED WALL PLATE FOR THE FAN CONTROL. THE LOCKABLE ENCLOSURE SHALL BE NEMA 3R OR NEMA 4 RATED WITH A HINGED COVER AND A PADLOCKING HASP. THE ENCLOSURE SHALL BE EQUAL TO HOFFMAN #A8R86HCR WITH #A8N8P BACK PANEL. CONVERT THE #10 AWG FEEDER WIRE TO #12 AWG WIRING FOR THE BUILDING LOADS IN THE ENCLOSURE USING WIRE NUT SPLICES. INSTALL EMT WITH LIGHT & FAN SWITCH LEG WIRING AND RECEPTACLE WIRING FROM THE TOP OF THE ENCLOSURE UP INTO THE STRUCTURE TO ROUTE WIRING TO THE LIGHTS, FANS AND RECEPTACLES. THE EMT INSTALLED IN THE STRUCTURE SHALL BE ROUTED AND PROPERLY SUPPORTED FROM THE PURLINS, BEAMS, AND COLUMNS AND THE ROUTING SHALL FOLLOW THE BUILDING LINES. THE RECEPTACLE AT THIS COLUMN SHALL BE MOUNTED ON THE COLUMN BELOW THE NEMA ENCLOSURE. PROPERLY GROUND THE ENCLOSURE AND ATTACH THE ENCLOSURE TO THE BUILDING COLUMN TO ASSURE GROUND CONTINUITY BETWEEN THE ENCLOSURE AND BUILDING COLUMN.
2. AT THE PAVILION: MOUNT THE LIGHT FIXTURES TO THE ROOF PURLINS. MOUNT AND PROPERLY SUPPORT THE CEILING FANS FROM THE RIDGE BEAM USING THE MANUFACTURER'S MOUNTING KIT AND FOLLOWING THE MANUFACTURER'S INSTRUCTIONS FOR MOUNTING THE FANS OVER A UL APPROVED OUTLET BOX LABELED ACCEPTABLE FOR FAN SUPPORT. SUPPORT THE FANS FROM THE RIDGE BEAM.
3. AT THE STORAGE BUILDING: MOUNT THE LIGHT FIXTURES TO THE ROOF PURLINS. THE EMT INSTALLED IN THE STRUCTURE SHALL BE ROUTED AND PROPERLY SUPPORTED FROM THE PURLINS, BEAMS, AND COLUMNS AND THE ROUTING SHALL FOLLOW THE BUILDING LINES.
4. AT THE STORAGE BUILDING: INSTALL THE NEW RMC FEEDER CONDUIT UP INTO THE BOTTOM OF A NEMA 3R, STEEL, LOCKABLE ENCLOSURE MOUNTED ON THE COLUMN. CONVERT THE #10 AWG FEEDER WIRE TO #12 AWG WIRING FOR THE BUILDING LOADS IN THE ENCLOSURE USING WIRE NUT SPLICES. PROPERLY GROUND THE ENCLOSURE AND ATTACH THE ENCLOSURE TO THE BUILDING COLUMN TO ASSURE GROUND CONTINUITY BETWEEN THE ENCLOSURE AND BUILDING COLUMN. INSTALL EMT FROM THIS ENCLOSURE TO FEED THE LIGHTS AND RECEPTACLES IN THE BUILDING.
5. AT THE VAULT TOILET: STUB THE FEEDER CONDUIT UP THROUGH THE BLOCK-OUT IN THE FLOOR OF THE PRE-CAST CONCRETE BUILDING AND THEN UP INTO THE BOTTOM OF THE LOAD CENTER IN THE CHASE. THE VAULT TOILET IS A PRE-WIRED BUILDING WITH A LOAD CENTER, LIGHT FIXTURES, CONDUITS, BOXES, ETC. THE CONTRACTOR ONLY NEEDS TO INSTALL THE FEEDER CONDUIT AND WIRE TO THE LOAD CENTER PROVIDED IN THIS BUILDING.
6. INSTALL A NEW CONCRETE ENCASED GROUND ELECTRODE IN THE SLAB OF THE PAVILION BUILDING AND IN THE SLAB OF THE STORAGE BUILDING. PER THE NEC: AS A MINIMUM THE NEW GEC SHALL BE A #4 AWG, BARE, STRANDED COPPER CONDUCTOR THAT IS AT LEAST 20' LONG. USE TIE-WIRES TO SUPPORT THE ELECTRODE FROM THE SLAB STEEL DURING THE CONCRETE POUR. STUB-OUT THE GEC AT THE COLUMN WHERE THE FEEDER BOXES ARE INSTALLED. ATTACH THE GEC TO THE BUILDING COLUMN BELOW THE FEEDER J-BOX APPROXIMATELY 6" ABOVE THE FLOOR. ATTACH THE GEC TO THE BUILDING COLUMN USING AN EXOTHERMIC CONNECTION. GRIND AWAY A SMALL SECTION OF FINISH ON THE COLUMN TO ASSURE THAT THE GEC IS ATTACHED TO BARE METAL. AFTER ATTACHMENT PAINT THE GEC CONNECTION POINT TO MATCH THE COLUMN COLOR.
7. THERE IS AN EXISTING WATER VALVE IN A VALVE BOX THAT IS INSTALLED NEAR THE EXISTING PRIMARY ELECTRIC POLE. THIS VALVE WILL NEED TO BE MOVED TO A LOCATION OUTSIDE OF THE PROPOSED PAVED AREA. LOCATE AND REMOVE THE VALVE AND VALVE BOX. THE VALVE BOX WILL NOT BE REUSED. GIVE THE VALVE BOX TO THE PARK. RE-INSTALL THE VALVE IN THE EXTENDED WATER LINE AT THE LOCATION SHOWN PER THE VALVE AND VALVE BOX INSTALLATION DETAIL ON SHEET U2.

NEW LOAD CENTER 'LC1'

EISENHOWER S.P. OHV TRAILHEAD AREA LOAD CENTER SCHEDULE

120/240 VAC, SINGLE PHASE LOAD CENTER INSTALLED ON NEW ELECTRIC SERVICE POLE

CIR.	BRK	P	WIRE	GRD.	SERVICE	SERVICE	WIRE	GRD.	P	BRK	CIR.
1	20	1	2-#10	#10	PAVILION LIGHTS & FANS	STORAGE LIGHTS	2-#10	#10	1	20	2
3	20	1	2-#10	#10	PAVILION RECEPTACLES	STORAGE RECEPTACLES	2-#10	#10	1	20	4
5	20	1	2-#10	#10	PAVILION RECEPTACLES	STORAGE RECEPTACLES	2-#10	#10	1	20	6
7	30	2	3-#10	#10	LC2 IN VAULT TOILET CHASE	LIGHTNING ARRESTOR	3-#12	–	2	20	8
9											10
11					SPACE	SPACE					12
13					SPACE	SPACE					14
15					SPACE	SPACE					16

SQ. D #QOM116M100RB LOAD CENTER, SURFACE MOUNTED, OUTDOOR NEMA 3R ENCLOSURE W/ 100 AMP MAIN CIRCUIT BREAKER, NEUTRAL & GROUND BUSSES. BOND THE NEUTRAL AND GROUND BUSSES IN THIS LOAD CENTER.
DIMENSIONS: 14-1/4" W. BY 22-1/8" H. BY 4-1/2" D.

ELECTRICAL DEVICE SCHEDULE

SYMBOL	REMARKS	MANUFACTURER
GFI	SURFACE MOUNTED, DUPLEX RECEPTACLE, IVORY, 20 A, PROVIDE STEEL WALL PLATE	LEVITON #CR20-I
GFI WP	WEATHERPROOF, SURFACE MOUNTED, DUPLEX RECEPTACLE, IVORY, 20 A LIGHT SWITCH, IVORY	LEVITON #CR20-I W/ GRAY, IN-USE, CAST ZINC COVER W/ STAINLESS STEEL HINGE, EQUAL TO LEVITON #M5979GY
$	LIGHT SWITCH, IVORY PROVIDE STEEL WALL PLATE	LEVITON #CS120-2I SINGLE POLE, 20 AMP RATED
$ F	CEILING FAN SPEED CONTROL, 120 VAC, 2.5 AMP, 300 WATT RATED, WITH LABELED WALL PLATE AND KNOB	NORTHWEST ENVIROFAN #100F MOUNT IN 1-GANG BOX INSTALLED IN LOCKABLE BOX AT PAVILION
$ T	CEILING FAN ON-OFF TIMER, COMMERCIAL GRADE, AUTO-OFF, SPRING WOUND TIME SWITCH, 120 VAC, 20 AMP RATED CONTACTS, 2-HOUR TIME CYCLE WITH LABELED WALL PLATE AND KNOB	INTERMATIC MODEL #FF2H INSTALL TIMER IN 1-GANG WP BOX W/ GRAY, IN-USE, CAST ZINC COVER W/ STAINLESS STEEL HINGE, EQUAL TO LEVITON #M5979GY. INSTALL TIMER ON THE SIDE OF THE LOCKABLE BOX AT PAVILION.
A	LIGHT FIXTURE	SEE LIGHT FIXTURE SCHEDULE
	CEILING FAN	SEE LIGHT FIXTURE SCHEDULE
	NEW LOAD CENTER	SEE LC1 CIRCUIT SCHEDULE ON THIS SHEET.

ALL BRANCH CIRCUIT WIRING IN THE PAVILION AND STORAGE BUILDINGS SHALL BE INSTALLED IN EMT CONDUIT UNLESS NOTED OTHERWISE ON THE DRAWINGS. CONDUIT SHALL BE SURFACE MOUNTED AND SUPPORTED FROM THE STEEL FRAMING MEMBERS AND COLUMNS. MINIMUM SIZE OF EMT CONDUIT IS 1/2" TRADE SIZE. THE WIRING TO THE LIGHTS, FANS AND RECEPTACLES IN THE PAVILION & STORAGE BUILDING SHOULD BE #12 AWG AFTER THE #10 AWG FEEDER WIRE IS INSTALLED TO THE J-BOXES AT EACH BUILDING.

USE 4" STEEL BOXES W/ RAISED STEEL COVERS TO MOUNT THE NEW SURFACE MOUNTED, NON-WEATHERPROOF, DUPLEX GFI RECEPTACLES IN THE STORAGE BLDG.
USE 4" STEEL BOXES W/ BLANK STEEL COVERS FOR JUNCTION BOXES UNLESS A LARGER SIZE J-BOX IS REQUIRED BY CODE.
USE 4" STEEL BOXES W/ BLANK STEEL COVERS FOR LIGHT FIXTURE BOXES AS NECESSARY.
USE A SURFACE MOUNTED, GANGED BOX OR BOXES W/ A RAISED, STEEL COVER FOR THE LIGHT SWITCHES INSIDE THE STORAGE BLDG.
USE CAST ALUMINUM BOXES FOR THE WEATHERPROOF RECEPTACLES ON THE PAVILION COLUMNS AND IN THE STORAGE BLDG.
USE A WEATHERPROOF, CAST ALUMINUM BOX FOR THE CEILING FAN TIMER IN THE PAVILION.

MOUNTING HEIGHTS
DUPLEX RECEPTACLES: 24" A.F.F. TO CENTER OF BOX UNLESS NOTED OTHERWISE ON THE PLAN.
SWITCHES: 48" A.F.F. TO CENTER OF SWITCH BOX UNLESS NOTED OTHERWISE.
FAN TIMER: MAXIMUM OF 48" A.F.F.

LIGHT FIXTURE SCHEDULE

TYPE	MANUFACTURER AND CAT. NO.	NO.	LAMPS/FIXTURE & TYPE	WATTS	DESCRIPTION/REMARKS
A	LITHONIA #XWMLED DAMP LOCATION RATED.	1	LED LIGHT SOURCE 4000° K, 88 CRI 1800 LUMENS	24 W	4' ENCLOSED, INDUSTRIAL FLUORESCENT FIXTURE W/ FIBERGLASS BODY & GASKETED, POLYCARBONATE LENS ATTACHED TO BODY WITH STAINLESS STEEL LATCHES AND LED SOURCE WITH 84% LUMEN OUTPUT AFTER 60,000 HOURS OF USE. MOUNT THE FIXTURES TO THE BOTTOM OF THE PURLINS IN PAVILION & STORAGE BLDG.
B	RAB LIGHTING #WPLED13Y WALL PACK TYPE FIXTURE	1	LED SOURCE WITH 662 TOTAL LUMEN OUTPUT, 3000° K CCT LEDs	15 W	EXTERIOR WALL PACK W/ J-BOX THAT IS FULL CUT-OFF RATED, CAST ALUMINUM FIXTURE W/ BRONZE FINISH, TEMPERED GLASS LENS, SPECULAR THERMOPLASTIC REFLECTOR, UL WET LOCATION LISTED. DRIVER: 120 VOLT, CONSTANT CURRENT W/ 4 kV SURGE PROTECTION. LED SOURCE: 3000 °K, 87 CRI, 662 LUMEN LM79/LM80 OUTPUT. 9-1/2" WIDE BY 2-7/8" HIGH W/ 10-3/4" PROJECTION FROM BLDG. BEAM. MOUNT FIXTURE CENTERED ON FRONT OF BUILDING BETWEEN THE ROLL-UP DOORS, APPROXIMATELY 11' ABOVE GRADE.
C	NORTHWEST ENVIROFAN #160F-7 BLK WITH #100F SPEED CONTROL UNIT	–	NONE	–	56" CEILING FAN WITH BLACK METAL BLADES, HOUSING, CANOPY, AND 10" LONG BY 1/2" DIA. DOWNROD. DOWNROD FINISH SHALL MATCH FAN FINISH. SUPPLY FAN FOR 120 VOLTS, DOWN-BLOWING ONLY, VARIABLE SPEED WITH 34,500 CFM MAX. AIR FLOW AT HIGH SPEED AND SECONDARY SUPPORT CABLE SECURELY MOUNT FANS OVER A FIXTURE BOX FROM THE RIDGE BEAM OF PAVILION PER MANUFACTURER'S INSTRUCTIONS. SUPPLY WITH SPEED CONTROL UNIT THAT WILL OPERATE BOTH FANS IN THE PAVILION. MOUNT WITH BOTTOM OF FAN APPROX. 14'-0" A.F.F.

100% CONSTRUCTION DOCUMENTS

TEXAS PARKS & WILDLIFE

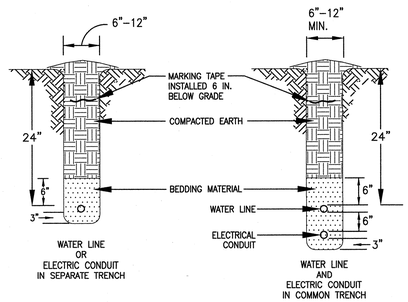
STATE OF TEXAS
RANDALL J. COMBS
66182
REGISTERED PROFESSIONAL ENGINEER
1-5-16

EISENHOWER STATE PARK
OHV TRAILHEAD FACILITIES
PROJECT NUMBER: 116834

DATE: 12/16/15
DESIGNED BY: RJC
DRAWN BY: RJC
REVIEWED BY:
REVISED:
REVISED:
REVISED:

SHEET TITLE
UTILITY SITE PLAN

SHEET NUMBER
U1
OF 3
116834_ U1.dwg



TRENCHING NOTES

NOTE: NO SUB–SURFACE BORINGS HAVE BEEN DONE IN THE WORK AREA. THE CONTRACTOR IS RESPONSIBLE FOR TRENCHING AND EXCAVATING IN ALL MATERIALS ENCOUNTERED.

THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS TOOLS AND EQUIPMENT NECESSARY TO ACCOMPLISH THE REQUIRED TRENCHING FOR THE PROJECT. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES PRIOR TO STARTING EXCAVATION. COSTS OF REPAIRING DAMAGE TO EXISTING UNDERGROUND UTILITIES OR FACILITIES SHALL BE BORNE BY THE CONTRACTOR.

TRENCHES SHALL BE EXCAVATED TO THE DEPTHS SHOWN ON THESE DETAILS AND LINES PLACED AS SHOWN ON THESE DETAILS. THE WIDTH OF ANY TRENCHES SHALL BE BETWEEN SIX AND TWELVE INCHES.

BEDDING MATERIAL SHALL BE BEDDED AROUND ALL WATER LINES & CONDUITS. BEDDING MATERIAL SHALL BE SAND OR OTHER SUITABLE BEDDING MATERIAL THAT PASSES A 3/8" SIEVE TEST. THE COMPACTED EARTH FILL MATERIAL SHALL BE FREE OF MUD, CLAY LUMPS, VEGETATION, DEBRIS AND ROCKS EXCEEDING 4" IN IN THEIR GREATEST DIMENSION. THE "FINES" RESULTING FROM THE USE OF A TRENCHING MACHINE MAY ONLY BE USED AS COMPACTED EARTH BACKFILL UNLESS SPECIFICALLY APPROVED BY THE TPWD ENGINEER.

THE BEDDING MATERIAL SHALL BE WATER–TAMPED AROUND ALL LINES BY FLOODING THE TRENCH WITH WATER AND ALLOWING THE MATERIAL TO SETTLE IN AS THE WATER RECEDES AND IS ABSORBED. AFTER THIS FLOODING THE BEDDING MATERIAL DEPTHS ABOVE AND BELOW THE LINES SHALL STILL ADHERE TO THE DETAIL DIMENSIONS.

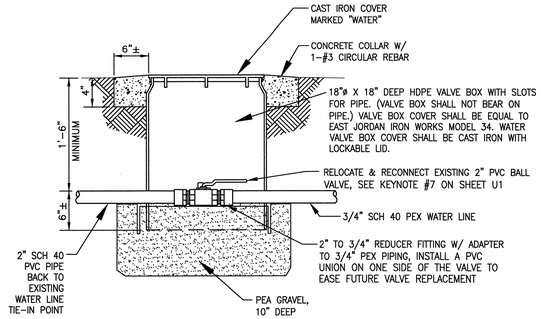
THE COMPACTED EARTH BACKFILL SHALL BE COMPACTED IN 6" LIFTS. HAND TAMPING SHALL BE DONE WITH A MECHANICAL TAMPER. THE TOP OF THE BACKFILLED TRENCH SHALL BE SLIGHTLY MOUNDED ABOVE THE SURROUNDING GRADE TO ALLOW FOR SETTLEMENT.

ELECTRICAL MARKING TAPE SHALL BE BURIED AT THE DEPTHS SHOWN IN TRENCHES CARRYING ELECTRIC CONDUIT OR BOTH ELECTRIC CONDUIT AND WATER LINES. TRENCHES WITH ONLY WATER LINES SHALL HAVE A DETECTABLE WATER LINE MARKING TAPE.

WHERE MULTIPLE CONDUITS ARE INSTALLED IN A TRENCH THEY SHALL BE SEPARATED BY A MINIMUM OF 2" OF BEDDING MATERIAL. MULTIPLE CONDUITS MAY BE INSTALLED HORIZONTALLY OR VERTICALLY. IF MULTIPLE CONDUITS ARE INSTALLED VERTICALLY THE CONDUIT DEPTHS SHALL ADHERE TO THE DIMENSIONS SHOWN.

1 TRENCHING DETAILS & NOTES

SCALE: N.T.S.

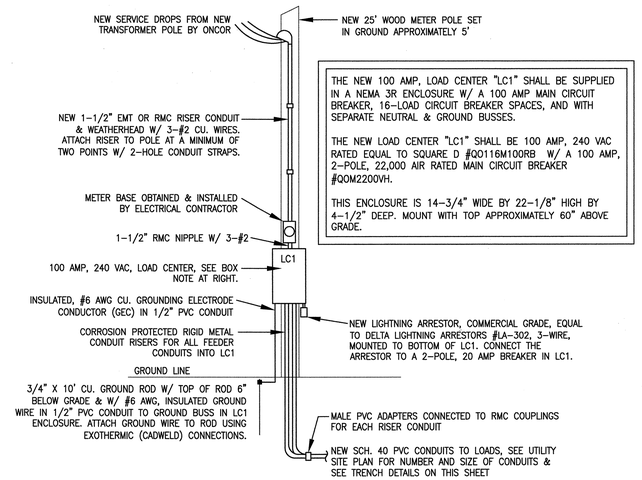


2 VALVE AND VALVE BOX DETAIL

NOT TO SCALE

NOTES FOR CUTOFF VALVES:

1. THE FINAL LOCATION FOR THE VALVE BOX WILL BE DETERMINED AT THE SITE BETWEEN THE CONTRACTOR, PARK PERSONNEL AND TPWD CONSTRUCTION PERSONNEL.
2. ON VALVE BOXES, USE BRICKS TO SUPPORT VALVE BOXES ABOVE WATER LINES. DO NOT LET VALVE BOXES OR SUPPORT BRICKS REST ON WATER LINES.
2. CONCRETE FOR CONCRETE COLLAR SHALL HAVE A MINIMUM 3000 PSI STRENGTH.
3. SLOPE THE NEW WATER LINE UP NEAR THE CUTOFF VALVE BOX SO THAT THE WATER VALVE IS APPROXIMATELY 18" BELOW THE TOP OF THE VALVE BOX.
4. ORIENT THE VALVE IN THE VALVE BOX SO THAT THE BALL VALVE HANDLE CAN BE EASILY OPERATED WITHOUT INTERFERENCE WITH THE SIDES OF THE VALVE BOX.

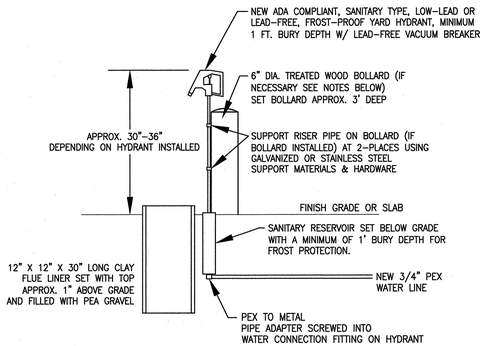


3 NEW ELECTRIC SERVICE POLE DETAIL

N.T.S.

SERVICE POLE NOTES:

1. COORDINATE THE INSTALLATION OF A NEW ELECTRIC SERVICE FOR THE OHV AREA WITH THE POWER COMPANY. THE INSTALLATION OF THE NEW METER POLE SHALL CONFORM TO ONCOR ELECTRIC DELIVERY SERVICE STANDARDS FOR SINGLE PHASE OVERHEAD SERVICE CONCERNING METER HEIGHT, WEATHERHEAD HEIGHT, CONDUIT TYPE, GROUNDING, ETC. AND ANY OTHER REQUIREMENTS SPECIFIED BY ONCOR PERSONNEL.
2. FOR THE NEW LOAD CENTER "LC1" THE NEUTRAL AND GROUND BUSSES SHALL BE BONDED. THE NEUTRAL & GROUND BUSSES OR THE NEUTRAL & GROUND WIRES SHALL NOT BE CONNECTED TOGETHER AT ANY OTHER POINT IN THE ELECTRICAL SYSTEM.
3. TO MAINTAIN THE INTEGRITY OF THE RAINPROOF ENCLOSURES, ALL CONDUIT ENTRIES INTO THESE ENCLOSURES SHALL BE MADE USING THE ENCLOSURE KNOCKOUTS.
4. PER THE NEC, ALL NEW GROUNDING ELECTRODES INSTALLED ON THIS PROJECT SHALL TEST WITH A MAXIMUM RESISTANCE OF 25 OHMS TO GROUND. AT LOCATIONS WHERE A SINGLE, 10' ROD TESTS AT MORE THAN 25 OHMS, THE CONTRACTOR WILL HAVE TO INSTALL ADDITIONAL RODS, LONGER SECTIONALIZED RODS, OR A COPPER GROUND PLATE TO LOWER THE RESISTANCE TO 25 OHMS OR LESS. SEE SECTION 3.6 IN THE ELECTRICAL SPECIFICATIONS ON SHEET U3.
5. INSTALL ADHESIVE OSHA SAFETY SIGNS ON THE FRONT OF "LC1". TWO BILINGUAL SIGNS THAT ARE PRINTED IN ENGLISH AND SPANISH ARE REQUIRED ON THE FRONT DOOR OF THE ENCLOSURE. ONE SIGN SHALL READ "DANGER! HIGH VOLTAGE" AND THIS SIGN SHALL HAVE A WHITE BACKGROUND WITH RED AND BLACK LETTERING, BE AT LEAST 3–1/2" WIDE BY 5" HIGH, BE SUITABLE FOR OUTDOOR LOCATIONS AND BE EQUAL TO SETON #07989. THE SECOND SIGN SHALL BE AN ARC FLASH WARNING SIGN AND THIS SIGN SHALL HAVE A WHITE BACKGROUND WITH ORANGE AND BLACK LETTERING, BE AT LEAST 6" WIDE BY 3–1/2" HIGH, BE SUITABLE FOR OUTDOOR LOCATIONS, AND SHALL BE EQUAL TO SETON #84624 OR #94311.



4 FROST-FREE YARD HYDRANT MOUNTING DETAIL

SCALE: N.T.S.

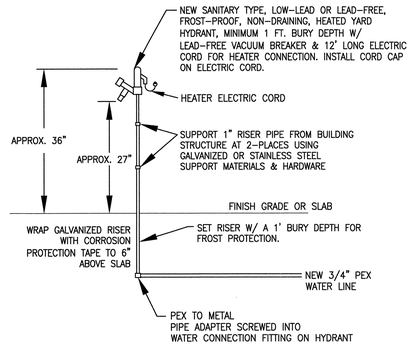
NOTES: HEIGHT OF HYDRANT AND EXCAVATION DEPTH REQUIRED FOR THE HYDRANT ASSEMBLY WILL VARY FROM WHAT IS SHOWN ON THIS DETAIL DEPENDING ON WHICH BRAND AND STYLE OF YARD HYDRANT IS SUBMITTED FOR APPROVAL AND APPROVED.

THE YARD HYDRANT SHALL BE A SELF–CLOSING, SANITARY TYPE THAT IS FULLY SEALED AND ALLOWS NO CONTACT OF THE POTABLE WATER SUPPLY WITH THE EARTH.

INSTALL THE YARD HYDRANT ASSEMBLY AND CONNECT THE PEX WATER LINE TO THE HYDRANT PER THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

YARD HYDRANTS SHALL BE WOODFORD TYPE S4H OR HOEPTNER FREEZE–FLOW TYPE 213 OR EQUAL. YARD HYDRANTS SHALL BE LOW–LEAD OR LEAD–FREE TO COMPLY WITH THE CURRENT SAFE DRINKING WATER ACT.

THE WOOD BOLLARD MAY BE OMITTED IF MANUFACTURER'S INSTRUCTIONS STATE THAT THE HYDRANT IS SELF–SUPPORTING WHEN INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.



5 STORAGE BUILDING HYDRANT MOUNTING DETAIL

SCALE: N.T.S.

NOTES: HEIGHT OF HYDRANT AND EXCAVATION DEPTH REQUIRED FOR THE HYDRANT ASSEMBLY WILL VARY FROM WHAT IS SHOWN ON THIS DETAIL DEPENDING ON WHICH BRAND AND STYLE OF YARD HYDRANT IS SUBMITTED FOR APPROVAL AND APPROVED.

THE YARD HYDRANT SHALL BE A LOW–LEAD\LEAD–FREE, SANITARY TYPE THAT IS A HEATED, NON–DRAINING TYPE WITH A THERMOSTATICALLY CONTROLLED, 65 WATT, 120 VAC HEAT ELEMENT. INSTALL A GROUNDED CORD CAP ON THE PIGTAIL WIRE OF THE HYDRANT.

INSTALL THE YARD HYDRANT ASSEMBLY AND CONNECT THE PEX WATER LINE TO THE HYDRANT PER THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

YARD HYDRANTS SHALL BE WOODFORD TYPE H34–C12–LL OR EQUAL. YARD HYDRANTS SHALL BE LOW–LEAD OR LEAD–FREE TO COMPLY WITH THE CURRENT SAFE DRINKING WATER ACT.

TEXAS PARKS & WILDLIFE

STATE OF TEXAS
RANDALL J. COMBS
66182
REGISTERED
PROFESSIONAL ENGINEER
1-5-16

EISENHOWER STATE PARK
OHV TRAILHEAD FACILITIES
PROJECT NUMBER: 116834

DATE: 12–16–15
DESIGNED BY: RJC
DRAWN BY: RJC
REVIEWED BY: RJC
REVISED:
REVISED:
REVISED:

SHEET TITLE
UTILITY
DETAILS

SHEET NUMBER
U2
116834 U2 Utility Details

100% CONSTRUCTION DOCUMENTS

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DIVISION 15 - WATER SYSTEM SPECIFICATIONS

PART 1 – GENERAL

1.1 QUALITY ASSURANCE:

INSTALL WORK IN ACCORDANCE WITH THE 2012 EDITION OF THE INTERNATIONAL PLUMBING CODE AND ALL APPLICABLE LOCAL AND STATE RULES. ALL WATER SYSTEM WORK SHALL BE PERFORMED BY OR UNDER THE DIRECT, ON–SITE SUPERVISION OF A PLUMBER LICENSED BY THE STATE BOARD OF PLUMBING EXAMINERS. SUBMIT A COPY OF THE PLUMBER'S LICENSE TO THE OWNER AS PART OF THE PROJECT SUBMITTAL INFORMATION LISTED IN THE SPECIAL CONDITIONS OF THE CONTRACT DOCUMENTS.

1.2 MATERIAL SUBMITTALS: SUBMIT MANUFACTURERS' PRODUCT DATA FOR THE FOLLOWING WATER SYSTEM ITEMS:

A. NEW VALVE BOXES
B. PEX PIPING AND FITTINGS
C. ADA COMPLIANT, FROST–FREE, LEAD–FREE YARD HYDRANT AND VACUUM BREAKER

PART 2 – PRODUCTS

2.1 MATERIAL:

A. ALL CROSS–LINKED POLYETHYLENE PIPING (PEX) SHALL CONSTRUCTED OF MATERIALS THAT CONFORM TO ASTM F876/877. ALL NEW PEX PIPE SHALL BEAR NSF NO. 14 SEAL OF APPROVAL.
B. ALL PEX FITTINGS SHALL BE CRIMP–ON TYPE AND SHALL CONFORM TO ASTM F1807 OR F2080.
C. ALL PVC PIPING SHALL CONSTRUCTED OF MATERIALS THAT CONFORM TO CELL CLASSIFICATION 12454–B AS DEFINED BY ASTM D1784. ALL NEW PVC PIPE SHALL BEAR NSF NO. 14 SEAL OF APPROVAL.
D. NEW 2" AND SMALLER DIAMETER PVC PIPE SHALL BE SCHEDULE 80 AND CONFORM TO ASTM D–1785 UNLESS NOTED OTHERWISE ON THE DRAWINGS
E. NEW PVC PIPE FITTINGS FOR 2" AND SMALLER PIPING SHALL BE SCHEDULE 80, SOLVENT WELDED TYPE. SOLVENT CEMENT SHALL CONFORM TO ASTM #D–2564.
F. ALL METAL WATER PIPE SHALL BE GALVANIZED STEEL WATER PIPE CONFORMING TO THE REQUIREMENTS OF ASTM A–53 OR ASTM A120 STANDARD WEIGHT, SCHEDULE 40 PIPE. THREADING SHALL BE STANDARD TAPER PIPE THREADS CONFORMING TO ASME B1.20.1,
G. METAL PIPE FITTINGS SHALL BE GALVANIZED MALLEABLE IRON WITH THREADED JOINTS. FITTINGS FOR CONNECTIONS TO PVC PIPE TO BE THREADED JOINT.
H. NEW VALVES SHALL BE MANUAL, 2–WAY, PVC BALL TYPE VALVES RATED FOR 125 PSI MINIMUM WORKING PRESSURE AND COLD WATER SERVICE. VALVES SHALL HAVE A PVC BODY & BALL WITH SEALS, 1/4–TURN HANDLE WITH STOPS, AND SOLVENT CEMENT, SOCKET–WELD PIPING CONNECTIONS. VALVES SHALL BE EQUAL TO TRUE UNION, SPEARS, NIBCO BRANDS.
J. YARD HYDRANTS AND VACUUM BREAKERS SHALL BE ADA COMPLIANT, FROST–FREE, SANITARY TYPE WITH LEAD–FREE COMPONENTS AND STANDARD PIPE THREAD CONNECTIONS.
K. A BLUE, DETECTABLE MARKING TAPE, CONSISTING OF ONE LAYER OF .35 MIL THICK ALUMINUM FOIL LAMINATED BETWEEN TWO LAYERS OF INERT PLASTIC FILM, SHALL BE INSTALLED 6" DEEP ABOVE ALL WATER LINES THAT ARE BURIED ALONE. TAPE SHALL BE EQUAL TO TERRA TAPE REEF INDUSTRIES. TRENCHES WITH WATER LINES INSTALLED IN A COMMON DITCH WITH ELECTRICAL CONDUITS SHALL BE MARKED WITH ELECTRICAL MARKING TAPE. ALL TAPE SHALL BE INSTALLED WITH THE WRITING FACE UP.
L. IN THE EVENT EXISTING WATER, SEWER, GAS OR AIR LINES THAT ARE NOT SCHEDULED TO BE REPLACED ON THIS PROJECT ARE DAMAGED; THE CONTRACTOR SHALL MAKE ALL REPAIRS USING MATERIALS THAT ARE COMPATIBLE WITH THE TYPE OF PIPING DAMAGED.

PART 3 – EXECUTION

THE EXACT LOCATIONS OF THE TRENCH LINES FOR THE NEW WATER AND ELECTRICAL UTILITIES WILL BE DETERMINED IN THE FIELD AT THE START OF CONSTRUCTION. THESE DETERMINATIONS WILL BE MADE BETWEEN THE PARK STAFF, TPWD CONSTRUCTION REPRESENTATIVES AND THE CONTRACTOR.

3.1 INSTALLATION OF PIPE:

1. FOR NEW RUNS OF WATER PIPING CARE SHALL BE TAKEN NOT TO DAMAGE PIPE DURING LAYING OPERATIONS. THE NEW PEX WATER LINE SHOULD BE INSTALLED IN ONE CONTINUOUS LENGTH FROM THE TIE–IN POINT TO EACH TAP OR CONNECTION POINT WITH NO JOINTS OR FITTINGS EXCEPT AT THE TAP POINTS OR AT FINAL CONNECTION POINTS AT EQUIPMENT. THE PIPE SHALL BE LAID SO IT WILL RECEIVE CONTINUOUS SUPPORT THROUGHOUT ITS FULL LENGTH AND IN NO CASE SHALL PVC PIPE BE INSTALLED SO THE COUPLINGS SUPPORT IT. THE PIPE SHALL BE CLEANED AND CHECKED FOR OBSTRUCTIONS BEFORE JOINING OR LAYING. PRIOR TO THE INSTALLATION OF THE NEW YARD HYDRANTS OR THE NEW DRINKING FOUNTAIN, THE NEW PIPING SYSTEM SHALL BE FLUSHED WITH WATER TO REMOVE DIRT, SAND, ETC. IN PREPARATION FOR TESTING AND STERILIZATION. WATER TESTING SHALL BE SCHEDULED WITH OWNER'S INSPECTOR. FOR PEX PIPING PROPER, MANUFACTURER RECOMMENDED TOOLS AND METHODS SHALL BE USED FOR ATTACHING FITTINGS TO THE PEX PIPING. FOR PVC PIPING THE SOLVENT CEMENT AND PRIMER RECOMMENDED BY THE SUPPLIER OR MANUFACTURER FURNISHING THE PIPE AND FITTINGS SHALL BE USED. IT SHALL BE APPLIED WITH STRICT ADHERENCE TO THE MANUFACTURER'S APPLICATION DIRECTIONS. ALL GALVANIZED PIPING INSTALLED BELOW GRADE SHALL BE WRAPPED WITH CORROSION PROTECTION TAPE TO A MINIMUM OF 6" ABOVE GRADE.

2. WATER SUPPLY AND DISTRIBUTION PIPING SHALL BE INSTALLED IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) CHAPTER 290 "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS".

3. FOR THE UNDERGROUND PVC WATER LINES: THE CONTRACTOR SHALL NOT EXCEED THE MANUFACTURER'S RECOMMENDATIONS FOR THE CURVATURE OF THE LINE OR THE DEFLECTION OF PIPE JOINTS. INSTALL PIPE FITTINGS ON PVC PIPING FOR ALL BENDS IN EXCESS OF 10 DEGREES.

4. THE WORKING PRESSURE RATING FOR WATER PIPE FITTINGS AND APPURTENANCES SHALL NOT BE LESS THAN 125 PSIG.

5. UNTIL FINAL CONNECTIONS ARE MADE THE ENDS OF ALL NEW LINES ARE TO BE CAPPED WITH PIPING MATERIAL THAT MATCHES LINE TO BE CAPPED.

6. ALL PIPING AND APPURTENANCES SHALL BE NEW. ALL NEWLY INSTALLED WATER PIPING AND RELATED PRODUCTS SHALL CONFORM TO AMERICAN NATIONAL STANDARD INSTITUTE / NATIONAL SANITATION FOUNDATION (ANSI/NSF) STANDARD 61.

7. ALL PLASTIC PIPING SHALL BEAR THE NSF SEAL OF APPROVAL (NSF–pw) FOR POTABLE WATER.

8. THE SITE PIPING DRAWINGS DO NOT INDICATE ALL BENDS, FITTINGS, AND TRANSITIONS. CONTRACTOR SHALL FURNISH AND INSTALL THESE ITEMS AS NEEDED AT NO ADDITIONAL COST TO TPWD.

9. THE CONTRACTOR SHALL INSTALL PIPING TO ATTAIN MINIMUM TCEQ EARTH COVERAGE OVER NEW PIPING.

10. THE CONTRACTOR SHALL PROVIDE FOR THE DE–CHLORINIZATION OF HIGHLY CHLORINATED WATER BEFORE DISCHARGE.

3.2 HYDROSTATIC AND LEAKAGE TESTS:

PRIOR TO FINAL CONNECTION OF THE EACH NEW SECTION OF WATER PIPING TO THE EXISTING DISTRIBUTION PIPING A HYDROSTATIC TEST SHALL BE PERFORMED ON EACH NEW SECTION OF WATER PIPING. FINAL CONNECTION OF EACH NEW SECTION TO THE EXISTING WATER SYSTEM SHALL NOT BE ACCOMPLISHED UNTIL A HYDROSTATIC PRESSURE TEST AND LINE STERILIZATION ARE COMPLETED. WATER FOR THE HYDROSTATIC TESTING WILL BE PROVIDED BY THE PARK'S EXISTING WATER SYSTEM. WATER FOR FILLING AND TESTING THE NEW WATER LINES SHALL BE SUPPLIED TO THE NEW SECTION THROUGH A BACKFLOW PREVENTER TEMPORARILY INSTALLED ON A TAP OFF OF THE EXISTING SYSTEM. THIS BACKFLOW DEVICE WILL PREVENT CONTAMINATION OF THE EXISTING WATER SYSTEM FROM NON–STERILIZED WATER IN THE NEW SYSTEM DURING THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL COORDINATE WITH THE PARK FOR THE CONNECTION OF ANY TEMPORARY TAP TO THE EXISTING WATER SYSTEM. THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY FOR THE TESTS FOR THE NEW WATER SYSTEM. EACH WATER SYSTEM TEST SHALL BE SCHEDULED WITH THE TPWD PROJECT REPRESENTATIVES AND EACH WATER SYSTEM TEST SHALL BE WITNESSED BY A TPWD PROJECT REPRESENTATIVE OR HIS DESIGNATED REPRESENTATIVE. PRIOR TO THE WATER TEST AND WITH WATER PRESSURE APPLIED TO THE PART OF THE SYSTEM TO BE TESTED, EACH HOSE BIBB SHALL BE OPENED AND CLOSED SEVERAL TIMES SO THAT ALL AIR CAN BE EXPELLED FROM THE PIPELINE PRIOR TO BEGINNING THE TESTING PROCEDURE. FOR EACH NEW SECTION, AFTER THE WATER SYSTEM INSTALLATION IS COMPLETED AND FILLED WITH WATER, THE JOINTS COMPLETED AND CURED, AND WITH THE TRENCH PARTIALLY BACKFILLED LEAVING THE JOINTS EXPOSED FOR EXAMINATION, THE NEW PIPING SHALL BE SUBJECTED FOR TWO (2) HOURS TO A HYDROSTATIC PRESSURE TEST OF 150% OF THE PARK'S WATER SYSTEM WORKING PRESSURE. REGARDLESS OF THE PARK'S WATER SYSTEM WORKING PRESSURE, THE MINIMUM TEST PRESSURE FOR ALL TESTS SHALL BE 100 P.S.I. ALSO, THE TEST PRESSURE SHALL NOT EXCEED THE MANUFACTURER'S WORKING PRESSURE RATING FOR ANY PART INSTALLED IN THE SYSTEM. THE PIPING SHALL BE EXAMINED FOR LEAKAGE AND REPAIRED AS NECESSARY AND THE TEST SHALL BE REPEATED UNTIL THE TEST RESULTS ARE SATISFACTORY AS DETERMINED BY THE CONTINUOUS MAINTENANCE OF TEST PRESSURE ON THE PIPING FOR TWO (2) HOURS WITH NO DROP IN TEST PRESSURE DURING THE TEST PERIOD. ZERO LEAKS WILL BE ALLOWED FOR SOLVENT–WELDED JOINTS ON PVC PIPING.

ONLY NEW PIPING INSTALLED FOR THIS PROJECT SHALL BE SUBJECTED TO THE 150% PRESSURE TEST. ANY EXISTING PIPING SHALL BE VALVED OR CAPPED–OFF SO IT WILL NOT BE EXPOSED TO THE TEST PRESSURES.

3.3 STERILIZATION OF LINES:

THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY FOR THE STERILIZATION OF THE NEW PIPING FOR THE WATER SYSTEM BEFORE PLACING INTO SERVICE. THE LINES AND ANY FITTINGS SHALL BE STERILIZED BY THE APPLICATION OF A CHLORINATING AGENT. THE CHLORINATING AGENT MAY BE LIQUID CHLORINE, LIQUID CHLORINE/GAS WATER MIXTURE OR A CALCIUM HYPOCHLORITE SOLUTION. IT SHALL BE FED INTO THE LINES THROUGH A SUITABLE SOLUTION FEED DEVICE OR OTHER METHOD APPROVED BY A TPWD PROJECT REPRESENTATIVE. THE CHLORINATING AGENT SHALL BE APPLIED AT OR NEAR THE POINT FROM WHICH THE LINE IS BEING FILLED AND THROUGH A CORPORATION STOP OR OTHER APPROVED CONNECTION INSERTED IN THE HORIZONTAL AXIS OF THE LINE. THE WATER USED TO FILL THE LINE SHALL BE CONTROLLED TO FLOW INTO THE SECTION BEING STERILIZED VERY SLOWLY AND THE RATE OF APPLICATION OF THE CHLORINATING AGENT SHALL BE IN PROPORTION TO THE RATE OF WATER ENTERING THE LINE SO THAT THE RESULTING CHLORINATED WATER SOLUTION IN THE PIPING SYSTEM SECTION BEING STERILIZED SHALL HAVE AT LEAST 50 PPM OF AVAILABLE CHLORINE. THE CHLORINATED WATER SHALL BE RETAINED IN THE PIPELINES FOR A PERIOD OF NOT LESS THAN TWENTY–FOUR (24) HOURS. AT THE END OF THE RETENTION PERIOD, ALL CHLORINATED WATER SHALL BE THOROUGHLY FLUSHED FROM THE LINES UNTIL THE REPLACEMENT WATER IN THE LINES HAS A CHLORINE RESIDUAL OF NOT MORE THAN 0.4 PPM. ALL VALVES AND ALL EQUIPMENT CONNECTED TO THE LINES BEING DISINFECTED SHALL BE OPENED AND CLOSED SEVERAL TIMES DURING THE CONTACT PERIOD TO ASSURE DISINFECTION. PARTS AND FITTINGS BEING INSTALLED TO REPAIR A LINE OR TO TIE A NEW SYSTEM OR TEST EQUIPMENT TO THE EXISTING WATER SYSTEM SHALL BE DOSED PRIOR TO INSTALLATION WITH A CHLORINE SOLUTION THAT HAS A CONCENTRATION OF CHLORINE OF AT LEAST 50 PPM. WATER FOR THE STERILIZATION TESTING PROCEDURE WILL BE PROVIDED BY THE EXISTING WATER SYSTEM. AFTER ALL LINES ARE STERILIZED AND FLUSHED AS SPECIFIED ABOVE, SAMPLES OF WATER WILL BE TAKEN FROM THE WATER SYSTEM LINES AND SENT TO A DEPARTMENT OF HEALTH (TDH) LABORATORY FOR BACTERIOLOGICAL TESTS. IF THE SAMPLES FAIL TO MEET THE STANDARDS, THE DISINFECTION PROCESS AS OUTLINED ABOVE SHALL BE REPEATED AND CONTINUED UNTIL THE TDH TESTS SHOW SATISFACTORY RESULTS. TPWD PERSONNEL WILL MAKE ARRANGEMENTS TO HAVE TEST SAMPLES OBTAINED AND SENT TO TDH AND SHALL PAY THE COSTS FOR THESE THESE TESTS. COPIES OF THE WRITTEN TEST RESULTS FROM TDH FOR EACH WATER TEST SAMPLE SENT TO TDH SHALL BE RETAINED BY TPWD FOR THE PARK'S RECORDS AND THE PROJECT FILE.

DIVISION 16 - ELECTRICAL SYSTEM SPECIFICATIONS

PART 1 – GENERAL

1.1 ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE 2014 EDITION OF THE NATIONAL ELECTRIC CODE. THE ELECTRICAL WORK SHALL BE PERFORMED BY AN ELECTRICAL CONTRACTOR LICENSED WITH THE STATE OF TEXAS THROUGH TDLR. THE ELECTRICAL WORK SHALL BE PERFORMED UNDER THE DIRECT, ON–SITE SUPERVISION OF A LICENSED MASTER OR JOURNEYMAN ELECTRICIAN. SUBMIT COPIES OF THE LICENSES FOR THE MASTER, JOURNEYMAN, OR APPRENTICE ELECTRICIANS THAT WILL PERFORM THE WORK. SUBMIT THIS INFORMATION AS PART OF THE PROJECT SUBMITTAL INFORMATION.

1.2 MATERIAL SUBMITTALS: SUBMIT MANUFACTURERS' PRODUCT DATA FOR THE FOLLOWING ELECTRICAL SYSTEM ITEMS:

A. LOAD CENTERS AND CIRCUIT BREAKERS
B. LIGHT FIXTURES AND LIGHT SOURCE SPECIFICATIONS, ALL TYPES OF FIXTURES
C. CEILING FANS AND SUPPORT MATERIALS FOR FANS
D. RECEPTACLES, LIGHT SWITCHES, OUTLET BOXES, RAISED COVERS – ALL TYPES

PART 2 – PRODUCTS

2.1 METAL RACEWAYS:

A. RIGID STEEL CONDUIT (RMC): PROVIDE RIGID STEEL, ZINC–COATED, THREADED TYPE CONFORMING TO ANSI C80.1 AND UL 6. PROVIDE ZINC COATING FUSED TO INSIDE AND OUTSIDE WALLS. RIGID METAL CONDUIT FITTINGS: CAST MALLEABLE IRON, GALVANIZED OR CADMIUM PLATED. ALL FITTINGS SHALL BE THREADED TYPE. THE USE OF SPLIT COUPLINGS IS UNACCEPTABLE.

B. EMT CONDUIT: PROVIDE EMT CONFORMING TO ANSI C80.3 FOR GALVANIZED TUBING. PROVIDE ZINC COATING FUSED TO INSIDE AND AND OUTSIDE WALLS. USE COMPRESSION FITTINGS ONLY. SET–SCREW FITTINGS FOR EMT WILL NOT BE ACCEPTED.

2.2 NONMETALLIC CONDUIT:

HEAVY WALL CONDUIT: SCHEDULE 40 AND SCHEDULE 80, 90 C, UL RATED, CONSTRUCT OF POLYVINYL CHLORIDE AND CONFORMING TO NEMA TC–2, FOR DIRECT BURIAL, OR NORMAL ABOVE GROUND USE, UL–LISTED AND IN CONFORMITY WITH NEC ARTICLE 352. FITTINGS FOR NON–METALLIC CONDUIT SHALL CONFORM TO NEMA TC3 AND SHALL BE SPECIFICALLY MANUFACTURED FOR ELECTRICAL CONDUIT. WATER PIPE FITTINGS WILL NOT BE ACCEPTED.

2.3 UNDERGROUND WARNING TAPE:

MADE OF ACID AND ALKALI RESISTANT .0035 INCH THICK POLYETHYLENE FILM, BE 6 INCHES WIDE, WITH A TENSILE STRENGTH OF 1,750 PSI LENGTHWISE, 1,500 PSI CROSSWISE AND AN ELONGATION OF 350, BE BRIGHT YELLOW OR RED AND READ 'CAUTION BURIED ELECTRIC LINE' OVER ENTIRE LENGTH, BLACK PRINTING SHALL BE OVERCOATED TO PREVENT FADING.

2.4 CONDUCTOR MATERIALS AND ACCESSORIES:

A. GENERAL USE WIRE SHALL BE COPPER, TYPE THWN, UL LISTED FOR GENERAL USE AT A MAXIMUM OF 600 VOLTS AND A MAXIMUM TEMPERATURE OF 75 DEGREES C IN WET LOCATIONS. NUMBER 8 AWG AND LARGER SHALL BE STRANDED.

B. WIRE COLOR CODING:

SYSTEM	PHASE A	PHASE B	NEUTRAL
240/120	BLACK	RED	WHITE

GROUND – BARE COPPER OR GREEN COLORS SHALL BE INTEGRAL PIGMENTATION COLOR CODING FOR #10 AWG AND SMALLER WIRES, INCLUDING GROUND WIRES. FOR #8 AWG AND LARGER WIRES, COLORED PHASE TAPE SHALL BE APPLIED TO THE WIRE FOR IDENTIFICATION. TAPE SHALL BE APPLIED IN A SPIRAL, HALF–LAP MANNER OVER EXPOSED CONDUCTOR PORTIONS IN PULLBOXES, LOAD CENTERS, WIREWAYS AND OTHER ENCLOSURES.

C. WIRE MARKING LABELS: PROVIDE WIRE MARKING LABELS FOR MARKING WIRES TO CONFORM TO PART 3.5, IDENTIFICATION AND MARKINGS. ADHESIVE TYPE LABELS SHALL HAVE AN ADHESIVE BACKING WITH A WHITE BACKGROUND AND BLACK LETTERING EQUAL TO 3M SCOTCH– CODE OR T & B E–Z CODE. MARKERS MAY BE PRE–PRINTED, PRINTED WITH A HAND HELD PRINTER, OR WRITE–ON STYLE. OTHER WIRE MARKING LABELS SUCH AS HEAT SHRINK TUBING OR TY–WRAP TYPE LABELS MAY ALSO BE USED AFTER APPROVAL BY THE ENGINEER. WIRE SHALL BE CLEANED OF OIL, DIRT, AND PULLING COMPOUND BEFORE WIRE MARKERS ARE INSTALLED.

2.5 LOAD CENTERS AND CIRCUIT BREAKERS:

A. ALL ENCLOSURES SHALL HAVE DEAD FRONT CONSTRUCTION & ENCLOSED IN A NEMA 3R STEEL CABINET WITH PADLOCKING HASPS.

B. LOAD CENTERS SHALL HAVE AMPERAGE RATINGS AS SHOWN ON THE DRAWINGS. LUGS SHALL BE OF THE PROPER SIZE TO ACCEPT THE CABLE SHOWN ON DRAWINGS AND SHALL BE UL LISTED AS SUITABLE FOR THE CONDUCTORS SPECIFIED.

C. BUS BAR CONNECTIONS TO BRANCH BREAKERS IN LOAD CENTERS SHALL BE DISTRIBUTED PHASE TYPE. THE CURRENT CARRYING PARTS OF THE LOAD CENTER BUS ASSEMBLIES SHALL BE PLATED AND NEUTRAL BARS SHALL BE OF THE SOLID TYPE.

D. ALL LOAD CENTER ENCLOSURES SHALL HAVE A GROUND BUS AND A NEUTRAL BUS. BUSSES SHALL HAVE PROVISIONS FOR A MAIN GROUND AND ALL NEUTRAL & GROUND CONDUCTORS, SIZES AS NOTED ON DRAWINGS OR AS REQUIRED BY NEC, AND HAVE BRANCH LUGS OF SUFFICIENT SIZE AND QUANTITY FOR THE NUMBER OF CIRCUITS IN THE LOAD CENTER. NO NEUTRAL WIRE OR GROUND WIRE SHALL BE TRIMMED OR SPLIT TO FIT SMALLER SIZED LUGS. IF OVERSIZED LUGS ARE INSTALLED ON THE NEUTRAL BUSS TO ACCOMMODATE THE LARGER WIRE SIZES, WIRE SHALL BE ROUTED INTO THESE LUGS USING THE PROPER BENDING RADIUS AND TERMINATION METHODS.

E. ALL SUPPORT HARDWARE SHALL BE GALVANIZED OR PLATED STEEL.

F. CIRCUIT BREAKERS SHALL BE QUICK–MAKE, QUICK–BREAK PLUG–IN TYPE WITH COMMON TRIP ON ALL MULTI–POLE BREAKERS. THEY SHALL HAVE POSITIVE HANDLE INDICATION AND AN INTERNAL TIE MECHANISM WITH OVER–CENTER, TOGGLE–TYPE OPERATING MECHANISMS.

G. MINIMUM UL LISTED INTERRUPTING RATINGS (RMS SYM. AMPS) FOR LOAD CIRCUIT BREAKERS IS LISTED BELOW. MAIN CIRCUIT BREAKERS FOR THE LOAD CENTERS SHALL HAVE THE INTERRUPTING RATINGS NOTED ON THE DRAWINGS.

240 VOLT MAXIMUM BREAKERS

15 – 125 AMP = 10,000 AIR

2.6 GROUNDING MATERIAL: SEE GROUND ROD TESTING REQUIREMENTS IN SPECIFICATION, PART 3.6.

A. GROUND RODS: NON–RUSTING, ONE–PIECE OR SECTIONALIZED, COPPER RODS, 3/4 INCH BY 10 FOOT MINIMUM SIZE. COPPER TO BE BONDED TO A STEEL CORE. GROUND RODS SHALL HAVE A MINIMUM COPPER THICKNESS OF 10 MIL. LONGER LENGTH RODS OR SPECIALLY DESIGNED GROUNDING SYSTEMS MAY BE REQUIRED TO OBTAIN THE NEC REQUIRED GROUND RESISTANCE AT EACH GROUNDING ELECTRODE LOCATION.

B. ALL GROUNDING ELECTRODE CONDUCTOR (GEC) CONNECTIONS TO GROUND RODS OR OTHER GROUND ELECTRODES INCLUDING THE NEW METAL BUILDING SHALL BE EXOTHERMIC TYPE CONNECTIONS. MECHANICAL CONNECTIONS TO GROUND ELECTRODES OR TO THE NEW METAL BUILDING WILL NOT BE ALLOWED.

PART 3 – EXECUTION

3.1 INSTALLATION OF CONDUITS:

A. MECHANICALLY FASTEN TOGETHER METAL CONDUITS, ENCLOSURES, AND RACEWAYS FOR CONDUCTORS TO FORM CONTINUOUS ELECTRICAL CONDUCTOR.

B. CONDUITS SHALL HAVE OPENINGS TEMPORARILY PLUGGED TO EXCLUDE FOREIGN MATERIALS, BE REAMED AFTER CUTTING; HAVE JOINTS CUT SQUARE, AND BUTT SOLIDLY INTO FITTINGS; HAVE THE ENDS TERMINATED IN A PROPER BUSHED FITTING, BE RIGIDLY SUPPORTED SO AS TO PREVENT UNDUE STRESS OR STRAIN ON THE COUPLINGS AND CONNECTORS.

C. ON ALL METAL CONDUITS, BUSHINGS SHALL BE OF THE INSULATED TYPE. CONDUIT ENTRIES INTO THE TOPS OF OUTDOOR ENCLOSURES SHALL USE RAINTIGHT HUBS. CONDUIT ENTRIES INTO THE SIDES OR BACKS OF OUTDOOR ENCLOSURES SHALL USE SEALING LOCKNUTS.

D. ALL CONDUIT SYSTEMS MUST BE INSTALLED COMPLETE BEFORE CONDUCTORS ARE PULLED IN AND BE ELECTRICALLY CONTINUOUS THROUGHOUT.

E. ALL INTERIOR AND EXTERIOR CONDUIT AT THE NEW PAVILION SHALL BE EMT UNLESS NOTED OTHERWISE ON THE DRAWINGS.

3.2 UNDERGROUND CONDUIT INSTALLATION:

A. SHALL BE RIGID NON–METALLIC PVC, TYPE EPC–40 OR 80. AT ALL STUB–UP POINTS INTO LOAD CENTERS, JUNCTION BOXES, OR OTHER ENCLOSURES CONVERT THE SCHEDULE 40 PVC UNDERGROUND CONDUIT TO RMC CONDUIT AT THE 90 DEGREE ELBOW TO STUB–UP ABOVE GRADE. WRAP ALL RMC IN CONTACT WITH EARTH WITH CORROSION PROTECTION TAPE TO A MINIMUM OF 6" ABOVE GRADE OR USE PVC COATED RMC FOR THE ELBOWS & RISERS.

B. FOR UNDERGROUND CONDUIT SEE TRENCH DETAILS ON THE DRAWINGS. RUN CONDUIT IN STRAIGHT LINES EXCEPT WHERE A CHANGE OF DIRECTION IS NECESSARY. PROVIDE NOT LESS THAN 3 INCHES CLEARANCE FROM THE CONDUIT TO EACH SIDE OF THE TRENCH. AS EACH CONDUIT RUN IS COMPLETE, ASSURE THAT THE CONDUIT INTERIOR IS FREE FROM DIRT OR DEBRIS. THEN IMMEDIATELY INSTALL CONDUIT PLUGS OR OTHERWISE COVER END OF CONDUIT TO PREVENT ENTRY OF FOREIGN MATERIAL UNTIL WIRE IS PULLED INTO CONDUIT. EXCEPT AT CONDUIT RISERS; ACCOMPLISH CHANGES IN DIRECTION OF RUNS EXCEEDING A TOTAL OF 10 DEGREES, EITHER VERTICAL OR HORIZONTAL, WITH LONG SWEEP BENDS. MANUFACTURED BENDS SHALL HAVE A MINIMUM RADIUS OF 18 INCHES FOR USE WITH CONDUITS OF LESS THAN 3 INCHES IN DIAMETER.

C. NO CONDUIT SMALLER THAN 3/4" SHALL BE INSTALLED BELOW GROUND.

D. ALL UNDERGROUND ELECTRICAL CONDUITS SHALL BE PERMANENTLY IDENTIFIED WITH A COLORED IDENTIFICATION TAPE OVER THE CONDUIT SYSTEMS BEFORE BACKFILLING TRENCHES. ALL TAPE SHALL BE INSTALLED WITH THE WRITING FACE UP.

3.3 CONDUCTOR INSTALLATION:

CONDUCTORS SHALL BE INSTALLED IN CONDUIT, A RACEWAY, BOX OR OTHER ENCLOSURE. NO CONDUCTORS OR CABLES SHALL BE INSTALLED IN CONDUITS, DUCT, OR RACEWAYS UNTIL THE RACEWAY OR CONDUIT SYSTEM HAS BEEN COMPLETED. WHEN INSTALLING CONDUCTORS, THE CONTRACTOR SHALL USE WIRE–PULLING COMPOUND WHEN INSTALLING ALL WIRING AND SHALL EXERCISE DUE CARE TO PREVENT DAMAGE TO CONDUCTORS OR INSULATION AND REPLACE ALL DAMAGED CONDUCTORS. TYPE THWN WIRING WITH THE OUTER NYLON JACKET DAMAGED WILL NOT BE ACCEPTED.

3.4 LOAD CENTER INSTALLATION:

A. INSTALLED PLUMB AND LEVEL AND WHEN SURFACE MOUNTED, SHALL BE RIGIDLY SECURED TO POLES, WALLS OR RACKS.

B. ALL WIRING SHALL BE TERMINATED ON MAIN LUGS OR MAIN BREAKER, BRANCH BREAKER LUGS, NEUTRAL BAR, OR GROUND BAR. NO SPLICES SHALL BE MADE IN THE ENCLOSURES.

C. PRIOR TO ACCEPTANCE OF WORK, LOAD CENTER DOORS AND TRIMS SHALL WORK PROPERLY AND ALL NAMEPLATES SHALL BE IN PLACE.

D. ALL LUGS, BOLTS, CLAMPS AND SCREWS SHALL BE TIGHTENED TO MANUFACTURERS SPECIFICATIONS.

3.5 IDENTIFICATION AND MARKINGS:

A. THE BRANCH CIRCUIT WIRING IN THE BUILDINGS SHALL BE LABELED WITH THE LOAD CENTER CIRCUIT NUMBER IN EACH JUNCTION BOX, PULLBOX, CEILING FAN BOX, RECEPTACLE BOX, SWITCH BOX, FAN SPEED CONTROL BOX, FIXTURE BOX OR OTHER ENCLOSURE.

B. THE BRANCH CIRCUIT WIRING SHALL BE LABELED WITH WIRE MARKING LABELS TO SHOW THE LOAD CENTER CIRCUIT NUMBER THAT FEEDS THE WIRING. THIS LABELING SHALL BE APPLIED IN ALL ELECTRICAL EQUIPMENT, BOXES, FIXTURES, LOAD CENTERS, JUNCTION BOXES, AND OTHER ELECTRICAL ENCLOSURES WHERE THE CIRCUIT HOT WIRING IS CONNECTED OR SPLICED.

C. INSTALL ADHESIVE LABELS TO THE COVERS OF THE RECEPTACLES, FAN SPEED CONTROLS, AND SWITCHES TO SHOW WHAT CIRCUIT FEEDS THE DEVICE, e.g., "LC1–4" OR "LC1–5". THE ADHESIVE LABELS SHALL BE WHITE WITH 1/4" HIGH, BLACK, CAPITAL LETTERING. CLEAN THE SURFACES PRIOR TO APPLYING LABELS TO ASSURE GOOD ADHERENCE TO THE COVERS.

D. LEGIBLY FILL OUT THE CIRCUIT SCHEDULE SUPPLIED WITH THE EQUIPMENT FOR EACH NEW LOAD CENTER TO SHOW WHAT LOADS ARE FED BY THE LOAD CENTER'S BRANCH CIRCUITS.

E. AN ENGRAVED, NAMEPLATE WITH 1/4" HIGH LETTERING MINIMUM SHALL BE ATTACHED TO THE OUTSIDE OF THE NEW LOAD CENTER ON THE METER POLE AND THE NEW VAULT TOILET BUILDING LOAD CENTER VIA CORROSION RESISTANT FASTENERS. THIS NAMEPLATE SHALL INDICATE THE DEVICE'S NAME, VOLTAGE AND PHASE. THE NAMEPLATE FOR LC2 SHALL ALSO LIST THE LC1 CIRCUIT NUMBER THAT FEEDS LC2, e.g., "FEEDS FROM LC1–7,9".

3.6 TESTS:

TO BE VALID ALL OPERATIONAL AND GROUND SYSTEM TESTS SHALL BE WITNESSED BY TPWD CONSTRUCTION PERSONNEL.

THE NEW GROUND ELECTRODE AT THE NEW ELECTRIC SERVICE POINT SHALL BE TESTED BY THE TPWD ELECTRICAL INSPECTOR AFTER INSTALLATION USING A GROUND RESISTANCE TESTER EQUAL TO AEMC MODEL #6416 OR BY A FALL OF POTENTIAL TEST. THE MAXIMUM RESISTANCE FOR EACH GROUND ELECTRODE SHALL BE NO MORE THAN 25 OHMS. AFTER THESE GROUND ELECTRODE RESISTANCE TESTS, IF A GROUND ELECTRODE OR COMBINATION OF GROUND ELECTRODES HAS A RESISTANCE HIGHER THAN 25 OHMS, THE CONTRACTOR WILL NEED TO MODIFY THE GROUND SYSTEM TO LOWER THIS RESISTANCE. TO LOWER THE RESISTANCE, THE CONTRACTOR SHALL DRIVE AND INTERCONNECT ADDITIONAL GROUND ELECTRODES IN A TRIAD FORMATION, INSTALL A SINGLE 20' SECTIONALIZED GROUND ROD OR USE A MANUFACTURED, ENCAPSULATED ELECTROLYTE GROUND ROD TO OBTAIN A RESISTANCE OF 25 OHMS OR LESS. FOR MULTIPLE GROUND ROD INSTALLATIONS, RODS SHALL BE SPACED 10' APART AND #1/0 AWG OR LARGER BARE, COPPER CONDUCTORS SHALL BE INSTALLED UNDERGROUND BETWEEN RODS. FOR INSTALLATIONS WITH MULTIPLE GROUND ELECTRODES A SINGLE GROUND ELECTRODE CONDUCTOR (GEC) SHALL BE INSTALLED FROM THE GROUND ELECTRODES TO THE GROUND BUSS IN THE DISTRIBUTION EQUIPMENT. DO NOT INSTALL PARALLEL GECs FROM THE GROUND ELECTRODES TO THE DISTRIBUTION EQUIPMENT. AFTER CORRECTIVE MEASURES ARE COMPLETE, THE NEW GROUND SYSTEM SHALL BE RE–TESTED BY THE TPWD ELECTRICAL INSPECTOR WITH A GROUND RESISTANCE TESTER TO SHOW THAT THE INSTALLATION HAS A TOTAL RESISTANCE OF 25 OHMS OR LESS. GROUND ELECTRODE RESISTANCE TEST RESULTS WILL BE DOCUMENTED BY THE TPWD INSPECTOR AND INCLUDED IN THE PROJECT INSPECTION REPORTS. THE TEST RESULTS WILL INCLUDE GROUND SYSTEM RESISTANCE VALUES AND THE WEATHER AND SOIL CONDITIONS PRESENT DURING THE TESTS.

THE CONTRACTOR SHALL ALSO PERFORM AN OPERATIONAL TEST AFTER ALL EQUIPMENT AND LOADS HAVE BEEN CONNECTED AND READY TO USE. THESE TESTS SHALL VERIFY THE PROPER OPERATION OF ALL LIGHT FIXTURES, CEILING FANS, AND SWITCHES AND ASSURE THAT THE PROPER VOLTAGE IS AVAILABLE AT ALL RECEPTACLES AND LOAD CENTERS. COORDINATE THE TESTING OF EQUIPMENT WITH THE PARK STAFF AND TPWD CONSTRUCTION PERSONNEL.

END OF SPECIFICATION

100% CONSTRUCTION DOCUMENTS

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PROJECT NUMBER: 116834

DATE: 12–4–15
DESIGNED BY: RJC
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REVIEWED BY: RJC
REVISED:
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REVISED:

SHEET TITLE
UTILITY SPECIFICATIONS

SHEET NUMBER
U3
116834 U3 Utility Specs

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